CITY OF ENCINITAS
STORMWATER INTAKE FORM AND PRIORITY DEVELOPMENT PROJECT STORMWATER QUALITY MANAGEMENT PLAN (SWQMP)

FOR:

LEUCADIA 101 MIXED USE

1900 and 1950 N COAST HIGHWAY 101
ENCINITAS, CA 92024
APN 216-041-06, 20 and 21

PREPARED BY:

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535 NORTH HIGHWAY 101, SUITE A
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858-259-8212

PREPARED FOR:

ENCINITAS BEACH LAND VENTURE I, LLC
674 VIA DE LA VALLE , SUITE 310
SOLANA BEACH 92075
858-436-3600

DATE OF SWQMP:

MAY 2020
REVISED: SEPTEMBER 2020
REVISED: DECEMBER 2020
REVISED: MAY 2021
REVISED: JULY 2021

GRADING PLAN PREPARED BY:

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PREPARER'S CERTIFICATION

I hereby declare that I am the Engineer in Responsible Charge of design of storm water best management practices (BMPs) for this project, and that I have exercised responsible charge over the design of the BMPs as defined in Section 6703 of the Business and Professions Code, and that the design is consistent with the Priority Development Project (PDP) requirements of the City of Encinitas BMP Design Manual, which is a design manual for compliance with local City of Encinitas and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2015-0100) requirements for storm water management.

I have read and understand that the City Engineer has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the BMP Design Manual. I certify that this PDP SWQMP has been completed to the best of my ability and accurately reflects the project being proposed and the applicable BMPs proposed to minimize the potentially negative impacts of this project's land development activities on water quality. I understand and acknowledge that the plan check review of this PDP Storm Water Quality Management Plan (SWQMP) by the City Engineer is confined to a review and does not relieve me, as the Engineer in Responsible Charge of design of storm water BMPs for this project, of my responsibilities for project design.

Engineer's Seal

Engineer of Work's Signature, PE Number

William J. Suiter, RCE 68964
Print Name

Pasco, Laret, Suiter & Associates
Company

7/21/2021
Date

PROJECT OWNER'S CERTIFICATION

This PDP SWQMP has been prepared for Encinitas Beach Land Venture I, LLC by Pasco Laret Suiter & Associates. The PDP SWQMP is intended to comply with the PDP requirements of the City of Encinitas BMP Design Manual, which is a design manual for compliance with local City of Encinitas and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2015-0100) requirements for storm water management.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan. Once the undersigned transfers its interests in the property, its successor-in-interest shall bear the aforementioned responsibility to implement the best management practices (BMPs) described within this plan, including ensuring on-going operation and maintenance of structural BMPs. A signed copy of this document shall be available on the subject property into perpetuity.

Project Owner's Signature

Lawrence Jedel

Print Name

Encinitas Beach Land Venture I, LLC

Company

3/9/21

Date

SUBMITTAL RECORD

Use this table to keep a record of submittals of this PDP SWQMP. Each time the PDP SWQMP is re-submitted, provide the date and status of the project. In the fourth column, summarize the changes that have been made or indicate if response to plancheck comments is included. When applicable, insert response to plancheck comments behind this page.

Submittal Number	Date	Project Status	Summary of Changes
1	May 2020	☑ Preliminary Design / ☐ Planning/ CEQA ☐ Final Design	
2	Sept 2020	☑ Preliminary Design / Planning/ CEQA Final Design	
3	Dec 2020	☑ Preliminary Design / Planning/ CEQA Final Design	
4	May 2021	☑ Preliminary Design / Planning/ CEQA Final Design	
5	July 2021	☑ Preliminary Design / Planning/ CEQA Final Design	

PROJECT IDENTIFICATION

Project/Applicant Name: Encinitas Beach Land Venture I, LLC	
Permit/Application Number:	Date: July 2021
Site Address: 1900 and 1950 N Coast Hwy 101, Encinitas CA 92024	APN: 216-041-06, 20 and 21

Scope of work/project description:

The project proposes to demolish the existing development and construct a new apartment complex with approximately 94 units, boutique hotel, retail units, structured parking, access drive, hardscape and landscape, and associated improvements including storm water biofiltration basins to meet the requirements for pollutant control and an underground storage vault to comply with hydromodification management flow control and to mitigate the 100-year storm event peak discharge rate.

Due to the timing of construction, the right-of-way improvements directly in front of the project site, per the plans prepared by Michael Baker International, will be built by Encinitas Beach Land Venture I, LLC. Plans prepared by Michael Baker International Inc. at this time do not indicate a clear strategy on how to treat all the street runoff for the portion of right-of-way improvements this project proposes to build. Other areas of the City of Encintas' capital improvement project, 101 Streetscape, proposes to utilize a Green Streets design strategy. Due to conflicts with existing utilities, the project proposes to install two Modular Wetlands System units to treat the street runoff, in lieu of Green Streets improvements.

DETERMINATION OF PROJECT STATUS AND REQUIREMENTS

This form will identify permanent, post construction BMP requirements. Refer to City of Encinitas Stormwater BMP Design Manual for guidance.

Step 1: Is the project a "development project"? Development projects are defined as "construction, rehabilitation, redevelopment, or reconstruction of any public or private projects". See Section 1.3 and Table 1-2 of the manual for guidance. For example, interior remodels, roof replacements, and electrical and plumbing work are not development projects.	☑Yes	***Go to Step 2.***
	□ No	***Stop.*** Permanent BMP requirements do not apply. No SWQMP will be required. Provide discussion below.

If "No", provide discussion / justification explaining why the project is not a "development project":

Step 2: Complete questions below for Project Type Determination.

The project is (select one): □ New Development ☑ Redevelopment

The total proposed, newly created and/or replaced impervious area is: 169,082 ft^2

Is the project in any of the following categories, (a) through (f) below?			
Yes ☑	No □	(a)	New development projects or redevelopment projects that create and/or replaced 10,000 square feet or more of impervious surfaces (collectively over the entire project site). This includes commercial, industrial, residential, mixed-use, and public development projects.
Yes ☑	No □	(b)	Redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site on an existing site of 10,000 square feet or more of impervious surfaces). This includes commercial, industrial, residential, mixed-use, and public development projects.
Yes ☑	No □	(c)	New and redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site), and support one or more of the following uses: (i) Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC code 5812). (ii) Hillside development projects. This category includes development on any natural slope that is twenty-five percent or greater. (iii) Parking lots. This category is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce. (iv) Streets, roads, highways, freeways, and driveways. This category is defined as any paved impervious surface used for the transportation of automobiles, trucks, motorcycles, and other vehicles.
Yes □	No ☑	(d)	New or redevelopment projects that create and/or replace 2,500 square feet or more of impervious surface (collectively over the entire project site), and discharge directly to an Environmentally Sensitive Area (ESA). "Discharge directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands). Note: ESAs are areas that include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the State Water Board and SDRWQCB; State Water Quality Protected Areas; water bodies designated with the RARE beneficial use by the State Water Board and SDRWQCB; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees. See manual Section 1.4.2 for additional guidance.
Yes □	No ☑	(e)	New development projects, or redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface, that support one or more of the following uses: (i) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following SIC codes: 5013, 5014, 5541, 7532-7534, or 7536-7539. (ii) Retail gasoline outlets. This category includes retail gasoline outlets that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic of 100 or more vehicles per day.
Yes ☑	No □	(f)	New or redevelopment projects that result in the disturbance of one or more acres of land and are expected to generate pollutants post construction. *Note: See manual Section 1.4.2 for additional guidance.*

Does the project meet the definition of one or more of the PDP categories (a) through (f) listed above?

☑ Yes – **The project is a <u>Priority Development Project</u>, the applicant shall provide PDP Post Construction BMPs and *continue to Step 3*.**

□No – **The project is a <u>Standard or Basic Project</u>. *Stop here and complete the "City of Encinitas Stormwater Intake Form for All Developments and Standard Projects SWQMP".***

The following is for *<u>redevelopment PDPs</u>* only:

The area of existing (pre-project) impervious area at the project site is: <u>76,819</u> ft^2 (A)
The total proposed newly created or replaced impervious area is: <u>143,659</u> ft^2 (B)
Percent impervious surface created or replaced (B/A)*100: <u>187 %</u>
The percent impervious surface created or replaced is (select one based on the above calculation):

□ Less than or equal to fifty percent (50%) – only new and/or replaced impervious areas are considered PDP subject to treatment and HMP criteria
OR

☑ Greater than fifty percent (50%) – the entire site is a PDP; treatment and HMP criteria apply to entire site regardless of whether it is replaced

<u>Step 3 (PDPs only):</u> Do hydromodification control requirements apply? See Section 1.6 of the BMP Design Manual for guidance.	☑ Yes	PDP structural BMPs required for pollutant control (Chapter 5) and hydromodification control (Chapter 6). ***Go to Step 4.***
	□ No	PDP structural BMPs required for pollutant control (Chapter 5) only. Provide brief discussion of exemption to hydromodification control below. ***Go to "Site Information Checklist"***

Discussion / justification if hydromodification control requirements do <u>not</u> apply:

<u>Step 4 (PDPs subject to treatment and hydromodification controls):</u> Does protection of critical coarse sediment yield areas apply based on review of City of Encinitas Potential Critical Coarse Sediment Yield Area Map? See Section 6.2 of the BMP Design Manual for guidance.	□ Yes	Management measures required for protection of critical coarse sediment yield areas (Chapter 6.2). ***Go to "Site Information Checklist"***
	☑ No	Management measures not required for protection of critical coarse sediment yield areas. Provide brief discussion below. ***Go to "Site Information Checklist"***

Discussion / justification if management measures <u>not</u> required for protection of critical coarse sediment yield areas:

Pursuant to the City of Encinitas Potential Critical Coarse Sediment Yield Area GIS layer, there are no potential critical coarse sediment yield areas on or upstream of the project site. Refer to the exhibit located in Attachment 2b.

SITE INFORMATION CHECKLIST

Project's Watershed (Complete Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	Carlsbad HU, San Marcos HA, Batquitos HSA, 904.51
Parcel Area (Total area of Assessor's Parcel(s) associated with the project)	3.79 Acres (165,107 Square Feet)
Area to be Disturbed by the Project (Project Area)	4.56 Acres (198,534 Square Feet)
Project Proposed Impervious Area (Subset of Project Area)	3.66 Acres (159,288 Square Feet)
Project Proposed Pervious Area (Subset of Project Area)	0.90 Acres (39,246 Square Feet)

Note: Proposed Impervious Area + Proposed Pervious Area = Area to be Disturbed by the Project. This may be less than the Parcel Area.

Description of Existing Site Condition

Current status of the site (select all that apply):

☑ Existing development

□ Previously graded but not built out

□ Demolition completed without new construction

□ Agricultural or other non-impervious use

□ Vacant, undeveloped/natural

Description / Additional Information:

The existing site is currently developed and consists of commercial buildings, paved access drives and parking, open space, hardscape and landscape.

Existing Land Cover includes (select all that apply):

☑ Vegetative Cover

☑ Non-Vegetated Pervious Areas

☑ Impervious Areas

Description / Additional Information:

Underlying soil belongs to Hydrologic Soil Group (select all that apply):

□ NRCS Type A

☑ NRCS Type B

□ NRCS Type C

□ NRCS Type D

Approximate Depth to Groundwater (GW):

□ GW Depth < 5 feet

□ 5 feet < GW Depth < 10 feet

□ 10 feet < GW Depth < 20 feet

☑ GW Depth > 20 feet

Existing Natural Hydrologic Features (select all that apply):

□ Watercourses

□ Seeps

□ Springs

□ Wetlands

☑ None

Description / Additional Information:

Description of Existing Site Drainage Patterns

How is storm water runoff conveyed from the site? At a minimum, this description should answer:

1) Is existing drainage conveyance natural or urban?
2) Is runoff from offsite conveyed through the site? If yes, quantify all offsite drainage areas, design flows, and locations where offsite flows enter the project site, and summarize how such flows are conveyed through the site.
3) Provide details regarding existing project site drainage conveyance network, including any existing storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels. And
4) Identify all discharge locations from the existing project site along with a summary of conveyance system size and capacity for each of the discharge locations. Provide summary of the pre-project drainage areas and design flows to each of the existing runoff discharge locations.

Describe existing site drainage patterns:

In the existing condition, storm water runoff from the site generally flows overland and in onsite storm drain easterly to North Coast Highway 101. There is offsite run-on from the hillside along the westerly and southerly boundaries.

An existing high point in North Coast Highway 101 is located approximately at the midpoint of the property's easterly boundary. Surface runoff from the property that enters the right-of-way north of the high point will continue to surface flow northerly and enters the public storm drain system within the La Costa Avenue and North Coast Highway 101 intersection. The storm drain system then conveys captured flows to the east side Carlsbad Boulevard into the Batiquitos Lagoon and ultimately the Pacific Ocean. Surface runoff from the property that enters the right-of-way south of the high point will surface flow southerly and enters a separate public storm drain system that conveys captured flow northerly to an extended detention basin located on the west side of Carlsbad Boulevard which discharges to Batiquitos Lagoon and ultimately the Pacific Ocean. The onsite storm drain connects to the public storm drain located on the west side of North Coast Highway 101 which also drains to the extended detention basin on the west side of Carlsbad Boulevard which discharges to Batiquitos Lagoon and ultimately the Pacific Ocean.

Drainage Basin	Area (ac)	Q100 (cfs)
POC-1	4.13	14.65

Refer to the "Preliminary Hydrology Study for Leucadia 101 Mixed Use" prepared by Pasco Laret Suiter & Associates dated July 2021.

Description of Proposed Site Development

Project Description / Proposed Land Use and/or Activities:

The project proposes to demolish the existing development and construct a new apartment complex with approximately 94 units, boutique hotel, retail units, structured parking, access drive, hardscape and landscape, and associated improvements including storm water biofiltration basins to meet the requirements for pollutant control and an underground storage vault to comply with hydromodification management flow control and to mitigate the 100-year storm event peak discharge rate.

List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features):

Proposed impervious features include the buildings, parking areas, access drive and hardscape.

List/describe proposed pervious features of the project (e.g., landscape areas):

Proposed pervious features include landscape areas and biofiltration basins.

Does the project include grading and changes to site topography?

☑ Yes
□ No

Description / Additional Information:

The project site will be graded to create pads suitable for the construction of structures, improvements and associated underground utilities.

Description of Proposed Site Drainage Patterns

Does the project include changes to site drainage (e.g., installation of new storm water conveyance systems)?

☑ Yes
□ No

If yes, provide details regarding the proposed project site drainage conveyance network, including storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels, and the method for conveying offsite flows through or around the proposed project site. Identify all discharge locations from the proposed project site along with a summary of the conveyance system size and capacity for each of the discharge locations. Provide a summary of pre- and post-project drainage areas and design flows to each of the runoff discharge locations. Reference the drainage study for detailed calculations.

Describe proposed site drainage patterns:

In the proposed condition, storm water runoff will be collected by proposed storm drain and conveyed to biofiltration basins located throughout the site. Discharge from the biofiltration basins will flow to the proposed underground storage vault located in the northeastern corner of the project site. The vault will discharge to a proposed 18" RCP which will connect to the back of the existing curb inlet located north of the project along North Coast Highway 101. The existing curb outlets to an 18" RCP then transitions to a 24" RCP that conveys flows northerly and into the Batiquitos Lagoon on the east side of Carlsbad Boulevard. Offsite storm water that runs onto the site along the westerly boundary will be intercepted via a new concrete ditch and routed to proposed storm drain which runs along the northern boundary of the site and connects to the underground vault outlet pipe and continues as described above. Offsite run-on along the southern boundary will be captured in a new concrete ditch and discharged to North Coast Highway 101 via sidewalk underdrain which will enter the public storm drain system and be conveyed to the extended detention basin on the west side of Carlsbad Boulevard as in the existing condition.

The biofiltration basins and underground storage vault are designed to provide pollutant control treatment and hydromodification management flow control to meet the requirements of the California Regional Water Quality Control Board San Diego Region municipal storm water permit (Order No. R9-2013-0001, referred to as the MS4 Permit). The underground storage vault will also provide mitigation for the 100-year storm event peak discharge rate.

Drainage Basin	Existing Condition		Proposed Detained Condition	
	Area (ac)	Q100 (cfs)	Area (ac)	Q100 (cfs)
POC-1	4.13	14.65	4.13	1.17

Refer to the "Preliminary Hydrology Study for the Leucadia 101 Mixed Use" prepared by Pasco Laret Suiter & Associates dated July 2021.

In the proposed condition, storm water runoff in the right-of-way will be collected by proposed curb inlet type Modular Wetlands System units. Discharge from the southerly Modular Wetlands System unit will flow to an existing curb inlet which conveys flow northerly towards the existing extended basin on the west side of Carlsbad Boulevard. The northerly Modular Wetlands System unit will flow to the proposed 18" RCP serving as the outlet for the proposed on-site underground storage vault and towards the east side of Carlsbad Boulevard (as described below).

Identification and Narrative of Receiving Water and Pollutants of Concern

Describe flow path of storm water from the project site discharge location(s), through urban storm conveyance systems as applicable, to receiving creeks, rivers, and lagoons as applicable, and ultimate discharge to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable):

On-site storm water runoff confluences with off-site run-on collected from the westerly boundary and discharges through a single point at the northeast corner of the project site to N Coast Highway 101. The discharge will flow through a new 18" storm drain and connects to the back of an existing concrete curb inlet (constructed per Drawing No. 6169-I) located at the southwest corner of the La Costa Avenue and N. Coast Highway 101 intersection. Discharge entering the curb inlet flows to the east through an 18" storm drain into a second curb inlet in the center median of N. Coast Highway 101. Discharge then flows to the north through an 18" storm drain which upsizes to a 24" before it discharges on the east side of Carlsbad Boulevard to Batiquitos Lagoon and ultimately the Pacific Ocean.

Offsite run-on along the southern boundary will be captured in a new concrete ditch and discharged to North Coast Highway via sidewalk underdrain which will enter the public storm drain system and be conveyed to the existing extended basin on the west side of Carlsbad Boulevard which discharges to the Batiquitos Lagoon and ultimately the Pacific Ocean.

List any 303(d) impaired water bodies within the path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable), identify the pollutant(s)/stressor(s) causing impairment, and identify any TMDLs and/or Highest Priority Pollutants from the WQIP for the impaired water bodies:

303(d) Impaired Water Body	Pollutant(s)/Stressor(s)	TMDLs / WQIP Highest Priority Pollutant
Batiquitos Lagoon	Toxicity	TMDL Estimated 2027

Identification of Project Site Pollutants*

***Identification of project site pollutants is only required if flow-thru treatment BMPs are implemented onsite in lieu of retention or biofiltration BMPs (note the project must also participate in an alternative compliance program unless prior lawful approval to meet earlier PDP requirements is demonstrated)**

Identify pollutants expected from the project site based on all proposed use(s) of the site (see BMP Design Manual Appendix B.6):

Pollutant	Not Applicable to the Project Site	Expected from the Project Site	Also a Receiving Water Pollutant of Concern
Sediment			
Nutrients			
Heavy Metals			
Organic Compounds			
Trash & Debris			

Oxygen Demanding Substances			
Oil & Grease			
Bacteria & Viruses			
Pesticides			

Hydromodification Management Requirements

Do hydromodification management requirements apply (see Section 1.6 of the BMP Design Manual)?

☑ Yes, hydromodification management flow control structural BMPs required.

□ No, the project will discharge runoff directly to existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

□ No, the project will discharge runoff directly to conveyance channels whose bed and bank are concrete-lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

□ No, the project will discharge runoff directly to an area identified as appropriate for an exemption by the WMAA for the watershed in which the project resides.

Description / Additional Information (to be provided if a 'No' answer has been selected above):

Critical Coarse Sediment Yield Areas*

*This section only required if hydromodification management requirements apply

Based on the maps provided within the City of Encinitas Engineering Design Manual dated January 2016, do potential critical coarse sediment yield areas exist within the project drainage boundaries?

□ Yes
☑ No, no critical coarse sediment yield areas to be protected based on WMAA maps

If yes, have any of the optional analyses presented in Section 6.2 of the BMP Design Manual been performed?

□ 6.2.1 Verification of Geomorphic Landscape Units (GLUs) Onsite
□ 6.2.2 Downstream Systems Sensitivity to Coarse Sediment
□ 6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite
□ No optional analyses performed, the project will avoid critical coarse sediment yield areas identified based on WMAA maps

If optional analyses were performed, what was the final result?

□ No critical coarse sediment yield areas to be protected based on verification of GLUs onsite
□ Critical coarse sediment yield areas exist but additional analysis has determined that protection is not required. Documentation attached in Attachment 2.b of the SWQMP.
□ Critical coarse sediment yield areas exist and require protection. The project will implement management measures described in Sections 6.2.4 and 6.2.5 as applicable, and the areas are identified on the SWQMP Exhibit.

Discussion / Additional Information:

Flow Control for Post-Project Runoff*

*This section only required if hydromodification management requirements apply

List and describe point(s) of compliance (POCs) for flow control for hydromodification management (see Section 6.3.1). For each POC, provide a POC identification name or number correlating to the project's HMP Exhibit and a receiving channel identification name or number correlating to the project's HMP Exhibit.

There is one (1) POC for the project, POC-1. POC-1 is located near the northeastern corner of the project site. Refer the exhibit located in Attachment 2a for the POC location.

Has a geomorphic assessment been performed for the receiving channel(s)?

☑ No, the low flow threshold is 0.1Q2 (default low flow threshold)
□ Yes, the result is low flow threshold 0.1Q2
□ Yes, the result is low flow threshold 0.3Q2
□ Yes, the result is low flow threshold 0.5Q2

If a geomorphic assessment has been performed, provide title, date, and preparer:

Discussion / Additional Information: (optional)

Other Site Requirements and Constraints
When applicable, list other site requirements or constraints that will influence storm water management design, such as zoning requirements including setbacks and open space, or local codes governing minimum street width, sidewalk construction, allowable pavement types, and drainage requirements.

SOURCE CONTROL BMP CHECKLIST

All development projects must implement source control BMPs SC-1 through SC-6 where applicable and feasible. See Chapter 4 and Appendix E of the manual for information to implement source control BMPs shown in this checklist.

Answer each category below pursuant to the following.

- "Yes" means the project will implement the source control BMP as described in Chapter 4 and/or Appendix E of the manual. Discussion / justification is not required.
- "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.
- "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project has no outdoor materials storage areas). Discussion / justification may be provided.

Source Control Requirement	Applied?		
SC-1 Prevention of Illicit Discharges into the MS4	☑ Yes	□ No	□ N/A
SC-2 Storm Drain Stenciling or Signage	☑ Yes	□ No	□ N/A
SC-3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	□ Yes	□ No	☑ N/A
SC-4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	□ Yes	□ No	☑ N/A
SC-5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☑ Yes	□ No	□ N/A
SC-6 Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below)			
☑ Onsite storm drain inlets	☑ Yes	□ No	□ N/A
☑ Interior floor drains and elevator shaft sump pumps drain to sewer	☑ Yes	□ No	□ N/A
☑ Interior parking garages drain to sewer	☑ Yes	□ No	□ N/A
□ Need for future indoor & structural pest control	□ Yes	□ No	☑ N/A
☑ Landscape/outdoor pesticide use	☑ Yes	□ No	□ N/A
☑ Pools, spas, ponds, decorative fountains, and other water features	☑ Yes	□ No	□ N/A
☑ Food service	☑ Yes	□ No	□ N/A
☑ Refuse/Trash areas must be covered	☑ Yes	□ No	□ N/A
□ Industrial processes	□ Yes	□ No	☑ N/A
□ Outdoor storage of equipment or materials must be covered	□ Yes	□ No	☑ N/A
□ Vehicle and equipment cleaning	□ Yes	□ No	☑ N/A
□ Vehicle/equipment repair and maintenance	□ Yes	□ No	☑ N/A
□ Fuel dispensing areas	□ Yes	□ No	☑ N/A
□ Loading docks	□ Yes	□ No	☑ N/A
☑ Fire sprinkler test water	☑ Yes	□ No	□ N/A
□ Miscellaneous drain or wash water	□ Yes	□ No	☑ N/A
☑ Plazas, sidewalks, and parking lots	☑ Yes	□ No	□ N/A

Discussion / justification if SC-1 through SC-6 not implemented. Justification must be provided for ALL "No" answers shown above.

SITE DESIGN BMP CHECKLIST

All development projects must implement site design BMPs SD-1 through SD-8 where applicable and feasible. See Chapter 4 and Appendix E of the manual for information to implement site design BMPs shown in this checklist.

Answer each category below pursuant to the following.

- "Yes" means the project will implement the site design BMP as described in Chapter 4 and/or Appendix E of the manual. Discussion / justification is not required.
- "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.
- "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project site has no existing natural areas to conserve). Discussion / justification may be provided.

Source Control Requirement	Applied?		
SD-1 Maintain Natural Drainage Pathways and Hydrologic Features	□ Yes	□ No	☑ N/A
SD-2 Conserve Natural Areas, Soils, and Vegetation	□ Yes	☑ No	□ N/A
SD-3 Minimize Impervious Area	☑ Yes	□ No	□ N/A
SD-4 Minimize Soil Compaction	☑ Yes	□ No	□ N/A
SD-5 Impervious Area Dispersion - Directly Connected Impervious Areas (e.g. roof downspouts connected to street) are not allowed	☑ Yes	□ No	□ N/A
SD-6 Runoff Collection	☑ Yes	□ No	□ N/A
SD-7 Landscaping with Native or Drought Tolerant Species	☑ Yes	□ No	□ N/A
SD-8 Harvesting and Using Precipitation	□ Yes	☑ No	□ N/A

Discussion / justification if SD-1 through SD-8 not implemented. Justification must be provided for ALL "No" answers shown above.

SD-2: The open space area in the southwestern portion of the site is a steep slope that will be graded to accommodate construction of buildings and improvements.

SD-8: Harvesting and using precipitation is not a feasible BMP for this project. Refer to Attachment 1c.

PDP STRUCTURAL BMPS

All PDPs must implement structural BMPs for storm water pollutant control (see Chapter 5 of the BMP Design Manual). Selection of PDP structural BMPs for storm water pollutant control must be based on the selection process described in Chapter 5. PDPs subject to hydromodification management requirements must also implement structural BMPs for flow control for hydromodification management (see Chapter 6 of the BMP Design Manual). Both storm water pollutant control and flow control for hydromodification management can be achieved within the same structural BMP(s).

PDP structural BMPs must be verified by the local jurisdiction at the completion of construction. This may include requiring the project owner or project owner's representative and engineer of record to certify construction of the structural BMPs (see Section 1.12 of the BMP Design Manual). PDP structural BMPs must be maintained into perpetuity (see Section 7 of the BMP Design Manual). The local jurisdiction will confirm the maintenance annually.

Use this section to provide narrative description of the general strategy for structural BMP implementation at the project site in the box below. Then complete the PDP structural BMP summary information sheet (page 3 of this form) for each structural BMP within the project (copy the BMP summary information page as many times as needed to provide summary information for each individual structural BMP).

Describe the general strategy for structural BMP implementation at the site. This information must describe how the steps for selecting and designing storm water pollutant control BMPs presented in Section 5.1 of the BMP Design Manual were followed, and the results (type of BMPs selected). For projects requiring hydromodification flow control BMPs, indicate whether pollutant control and flow control BMPs are integrated or separate.

DMAs 1-10 / BMPs 1-10 and 14

Step 1A: The DMA is not self-mitigating, de minimis, or self-retaining.

Step 1B: There are no site design BMPs proposed for the project for which the runoff factor can be adjusted.

Step 2: Harvest and use is not feasible. Refer to Attachment 1c.

Step 3: Pursuant to the geotechnical report and I-8 form, infiltration is feasible, however due to its potential to result in an increased risk of slope failure of existing slopes and nearby coastal bluff zones, infiltration is not suitable. Refer to Attachment 1d for the I-8 form.

Step 4: Biofiltration BMPs (BF-1) have been selected and sized per the design criteria to meet pollutant control requirements and an underground storage vault has been selected and sized per the design criteria to meet hydromodification management flow control requirements.

Right-Of-Way Improvements

Due to the timing of construction, the right-of-way improvements directly in front of the project site, per the plans prepared by Michael Baker International, will be built by Encinitas Beach Land Venture I, LLC. Plans prepared by Michael Baker International Inc. at this time do not indicate a clear strategy on how to treat all the street runoff for the portion of right-of-way improvements this project proposes to build. Other areas of the City of Encintas' capital improvement project, 101 Streetscape, proposes to utilize a Green Streets design strategy. Due to conflicts with existing utilities, the project proposes to install two Modular Wetlands System units to treat the street runoff, in lieu of Green Streets improvements.

STRUCTURAL BMP SUMMARY INFORMATION

Structural BMP ID No: BMPs 1	DMA Nos: 1
Construction Plan Sheet No:	
Type of structural BMP: □ Retention by harvest and use (HU-1) □ Retention by infiltration basin (INF-1) □ Retention by bioretention (INF-2) □ Retention by permeable pavement (INF-3) □ Partial retention by biofiltration with partial retention (PR-1) ☑ Biofiltration (BF-1) □ Biofiltration with Nutrient Sensitive Media Design (BF-2) □ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F □ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) □ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) □ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) □ Detention pond or vault for hydromodification management □ Other (describe in discussion section below)	
Purpose: ☑ Pollutant control only □ Hydromodification control only □ Combined pollutant control and hydromodification control □ Pre-treatment/forebay for another structural BMP □ Other (describe in discussion section below)	
Who will inspect and certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms required by the City Engineer (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 535 North Highway 101, Suite A Solana Beach, CA 92075 858-259-8212
Who will be the final owner of this BMP?	Encinitas Beach Land Venture I, LLC
Who will maintain this BMP into perpetuity?	Encinitas Beach Land Venture I, LLC
What is the funding mechanism for maintenance?	Encinitas Beach Land Venture I, LLC

STRUCTURAL BMP SUMMARY INFORMATION

Structural BMP ID No: BMPs 2	DMA Nos: 2
Construction Plan Sheet No:	
Type of structural BMP: □ Retention by harvest and use (HU-1) □ Retention by infiltration basin (INF-1) □ Retention by bioretention (INF-2) □ Retention by permeable pavement (INF-3) □ Partial retention by biofiltration with partial retention (PR-1) ☑ Biofiltration (BF-1) □ Biofiltration with Nutrient Sensitive Media Design (BF-2) □ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F □ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) □ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) □ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) □ Detention pond or vault for hydromodification management □ Other (describe in discussion section below)	
Purpose: ☑ Pollutant control only □ Hydromodification control only □ Combined pollutant control and hydromodification control □ Pre-treatment/forebay for another structural BMP □ Other (describe in discussion section below)	
Who will inspect and certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms required by the City Engineer (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 535 North Highway 101, Suite A Solana Beach, CA 92075 858-259-8212
Who will be the final owner of this BMP?	Encinitas Beach Land Venture I, LLC
Who will maintain this BMP into perpetuity?	Encinitas Beach Land Venture I, LLC
What is the funding mechanism for maintenance?	Encinitas Beach Land Venture I, LLC

STRUCTURAL BMP SUMMARY INFORMATION

Structural BMP ID No: BMPs 3	DMA Nos: 3
Construction Plan Sheet No:	
Type of structural BMP: □ Retention by harvest and use (HU-1) □ Retention by infiltration basin (INF-1) □ Retention by bioretention (INF-2) □ Retention by permeable pavement (INF-3) □ Partial retention by biofiltration with partial retention (PR-1) ☑ Biofiltration (BF-1) □ Biofiltration with Nutrient Sensitive Media Design (BF-2) □ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F □ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) □ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) □ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) □ Detention pond or vault for hydromodification management □ Other (describe in discussion section below)	
Purpose: ☑ Pollutant control only □ Hydromodification control only □ Combined pollutant control and hydromodification control □ Pre-treatment/forebay for another structural BMP □ Other (describe in discussion section below)	
Who will inspect and certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms required by the City Engineer (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 535 North Highway 101, Suite A Solana Beach, CA 92075 858-259-8212
Who will be the final owner of this BMP?	Encinitas Beach Land Venture I, LLC
Who will maintain this BMP into perpetuity?	Encinitas Beach Land Venture I, LLC
What is the funding mechanism for maintenance?	Encinitas Beach Land Venture I, LLC

STRUCTURAL BMP SUMMARY INFORMATION

Structural BMP ID No: BMPs 4	DMA Nos: 4
Construction Plan Sheet No:	
Type of structural BMP: □ Retention by harvest and use (HU-1) □ Retention by infiltration basin (INF-1) □ Retention by bioretention (INF-2) □ Retention by permeable pavement (INF-3) □ Partial retention by biofiltration with partial retention (PR-1) ☑ Biofiltration (BF-1) □ Biofiltration with Nutrient Sensitive Media Design (BF-2) □ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F □ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) □ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) □ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) □ Detention pond or vault for hydromodification management □ Other (describe in discussion section below)	
Purpose: ☑ Pollutant control only □ Hydromodification control only □ Combined pollutant control and hydromodification control □ Pre-treatment/forebay for another structural BMP □ Other (describe in discussion section below)	
Who will inspect and certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms required by the City Engineer (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 535 North Highway 101, Suite A Solana Beach, CA 92075 858-259-8212
Who will be the final owner of this BMP?	Encinitas Beach Land Venture I, LLC
Who will maintain this BMP into perpetuity?	Encinitas Beach Land Venture I, LLC
What is the funding mechanism for maintenance?	Encinitas Beach Land Venture I, LLC

STRUCTURAL BMP SUMMARY INFORMATION

Structural BMP ID No: BMPs 5	DMA Nos: 5
Construction Plan Sheet No:	
Type of structural BMP: □ Retention by harvest and use (HU-1) □ Retention by infiltration basin (INF-1) □ Retention by bioretention (INF-2) □ Retention by permeable pavement (INF-3) □ Partial retention by biofiltration with partial retention (PR-1) ☑ Biofiltration (BF-1) □ Biofiltration with Nutrient Sensitive Media Design (BF-2) □ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F □ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) □ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) □ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) □ Detention pond or vault for hydromodification management □ Other (describe in discussion section below)	
Purpose: ☑ Pollutant control only □ Hydromodification control only □ Combined pollutant control and hydromodification control □ Pre-treatment/forebay for another structural BMP □ Other (describe in discussion section below)	
Who will inspect and certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms required by the City Engineer (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 535 North Highway 101, Suite A Solana Beach, CA 92075 858-259-8212
Who will be the final owner of this BMP?	Encinitas Beach Land Venture I, LLC
Who will maintain this BMP into perpetuity?	Encinitas Beach Land Venture I, LLC
What is the funding mechanism for maintenance?	Encinitas Beach Land Venture I, LLC

STRUCTURAL BMP SUMMARY INFORMATION

Structural BMP ID No: BMPs 6	DMA Nos: 6
Construction Plan Sheet No:	
Type of structural BMP: □ Retention by harvest and use (HU-1) □ Retention by infiltration basin (INF-1) □ Retention by bioretention (INF-2) □ Retention by permeable pavement (INF-3) □ Partial retention by biofiltration with partial retention (PR-1) ☑ Biofiltration (BF-1) □ Biofiltration with Nutrient Sensitive Media Design (BF-2) □ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F □ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) □ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) □ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) □ Detention pond or vault for hydromodification management □ Other (describe in discussion section below)	
Purpose: ☑ Pollutant control only □ Hydromodification control only □ Combined pollutant control and hydromodification control □ Pre-treatment/forebay for another structural BMP □ Other (describe in discussion section below)	
Who will inspect and certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms required by the City Engineer (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 535 North Highway 101, Suite A Solana Beach, CA 92075 858-259-8212
Who will be the final owner of this BMP?	Encinitas Beach Land Venture I, LLC
Who will maintain this BMP into perpetuity?	Encinitas Beach Land Venture I, LLC
What is the funding mechanism for maintenance?	Encinitas Beach Land Venture I, LLC

STRUCTURAL BMP SUMMARY INFORMATION

Structural BMP ID No: BMPs 7	DMA Nos: 7
Construction Plan Sheet No:	
Type of structural BMP: □ Retention by harvest and use (HU-1) □ Retention by infiltration basin (INF-1) □ Retention by bioretention (INF-2) □ Retention by permeable pavement (INF-3) □ Partial retention by biofiltration with partial retention (PR-1) ☑ Biofiltration (BF-1) □ Biofiltration with Nutrient Sensitive Media Design (BF-2) □ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F □ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) □ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) □ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) □ Detention pond or vault for hydromodification management □ Other (describe in discussion section below)	
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Who will maintain this BMP into perpetuity?	Encinitas Beach Land Venture I, LLC
What is the funding mechanism for maintenance?	Encinitas Beach Land Venture I, LLC

STRUCTURAL BMP SUMMARY INFORMATION

Structural BMP ID No: BMPs 8	DMA Nos: 8
Construction Plan Sheet No:	
Type of structural BMP: □ Retention by harvest and use (HU-1) □ Retention by infiltration basin (INF-1) □ Retention by bioretention (INF-2) □ Retention by permeable pavement (INF-3) □ Partial retention by biofiltration with partial retention (PR-1) ☑ Biofiltration (BF-1) □ Biofiltration with Nutrient Sensitive Media Design (BF-2) □ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F □ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) □ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) □ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) □ Detention pond or vault for hydromodification management □ Other (describe in discussion section below)	
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What is the funding mechanism for maintenance?	Encinitas Beach Land Venture I, LLC

STRUCTURAL BMP SUMMARY INFORMATION

Structural BMP ID No: BMPs 9	DMA Nos: 9
Construction Plan Sheet No:	
Type of structural BMP: □ Retention by harvest and use (HU-1) □ Retention by infiltration basin (INF-1) □ Retention by bioretention (INF-2) □ Retention by permeable pavement (INF-3) □ Partial retention by biofiltration with partial retention (PR-1) ☑ Biofiltration (BF-1) □ Biofiltration with Nutrient Sensitive Media Design (BF-2) □ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F □ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) □ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) □ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) □ Detention pond or vault for hydromodification management □ Other (describe in discussion section below)	
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Who will be the final owner of this BMP?	Encinitas Beach Land Venture I, LLC
Who will maintain this BMP into perpetuity?	Encinitas Beach Land Venture I, LLC
What is the funding mechanism for maintenance?	Encinitas Beach Land Venture I, LLC

STRUCTURAL BMP SUMMARY INFORMATION

Structural BMP ID No: BMPs 10	DMA Nos: 10
Construction Plan Sheet No:	
Type of structural BMP: □ Retention by harvest and use (HU-1) □ Retention by infiltration basin (INF-1) □ Retention by bioretention (INF-2) □ Retention by permeable pavement (INF-3) □ Partial retention by biofiltration with partial retention (PR-1) ☑ Biofiltration (BF-1) □ Biofiltration with Nutrient Sensitive Media Design (BF-2) □ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F □ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) □ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) □ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) □ Detention pond or vault for hydromodification management □ Other (describe in discussion section below)	
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Who will be the final owner of this BMP?	Encinitas Beach Land Venture I, LLC
Who will maintain this BMP into perpetuity?	Encinitas Beach Land Venture I, LLC
What is the funding mechanism for maintenance?	Encinitas Beach Land Venture I, LLC

STRUCTURAL BMP SUMMARY INFORMATION

Structural BMP ID No: BMP-14	DMA No: 1-10
Construction Plan Sheet No:	
Type of structural BMP: □ Retention by harvest and use (HU-1) □ Retention by infiltration basin (INF-1) □ Retention by bioretention (INF-2) □ Retention by permeable pavement (INF-3) □ Partial retention by biofiltration with partial retention (PR-1) □ Biofiltration (BF-1) □ Biofiltration with Nutrient Sensitive Media Design (BF-2) □ Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F □ Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) □ Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) □ Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☑ Detention pond or vault for hydromodification management □ Other (describe in discussion section below)	
Purpose: □ Pollutant control only ☑Hydromodification control only □ Combined pollutant control and hydromodification control □ Pre-treatment/forebay for another structural BMP □ Other (describe in discussion section below)	
Who will inspect and certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms required by the City Engineer (See Section 1.12 of the BMP Design Manual)	William J. Suiter, RCE 68964 Pasco Laret Suiter & Associates 535 North Highway 101, Suite A Solana Beach, CA 92075 858-259-8212
Who will be the final owner of this BMP?	Encinitas Beach Land Venture I, LLC
Who will maintain this BMP into perpetuity?	Encinitas Beach Land Venture I, LLC
What is the funding mechanism for maintenance?	Encinitas Beach Land Venture I, LLC

ATTACHMENT 1 - BACKUP FOR PDP POLLUTANT CONTROL BMPS

This is the cover sheet for Attachment 1.

Indicate which items are included behind this cover sheet:

Attachment	Contents	Checklist
Attachment 1a	DMA Exhibit (Required) See DMA Exhibit Checklist on the back of this Attachment cover sheet.	☑ Included
Attachment 1b	Tabular Summary of DMAs Showing DMA ID matching DMA Exhibit, DMA Area, and DMA Type (Required)* *Provide table in this Attachment OR on DMA Exhibit in Attachment 1a	☑ Included on DMA Exhibit in Attachment 1a □ Included as Attachment 1b, separate from DMA Exhibit
Attachment 1c	Form I-7, Harvest and Use Feasibility Screening Checklist (Required unless the entire project will use infiltration BMPs) Refer to Appendix B.3-1 of the BMP Design Manual to complete Form I-7.	☑ Included □ Not included because the entire project will use infiltration BMPs
Attachment 1d	Form I-8, Categorization of Infiltration Feasibility Condition (Required unless the project will use harvest and use BMPs) Refer to Appendices C and D of the BMP Design Manual to complete Form I-8.	☑ Included □ Not included because the entire project will use harvest and use BMPs
Attachment 1e	Pollutant Control BMP Design Worksheets / Calculations (Required) Refer to Appendices B and E of the BMP Design Manual for structural pollutant control BMP design guidelines	☑ Included

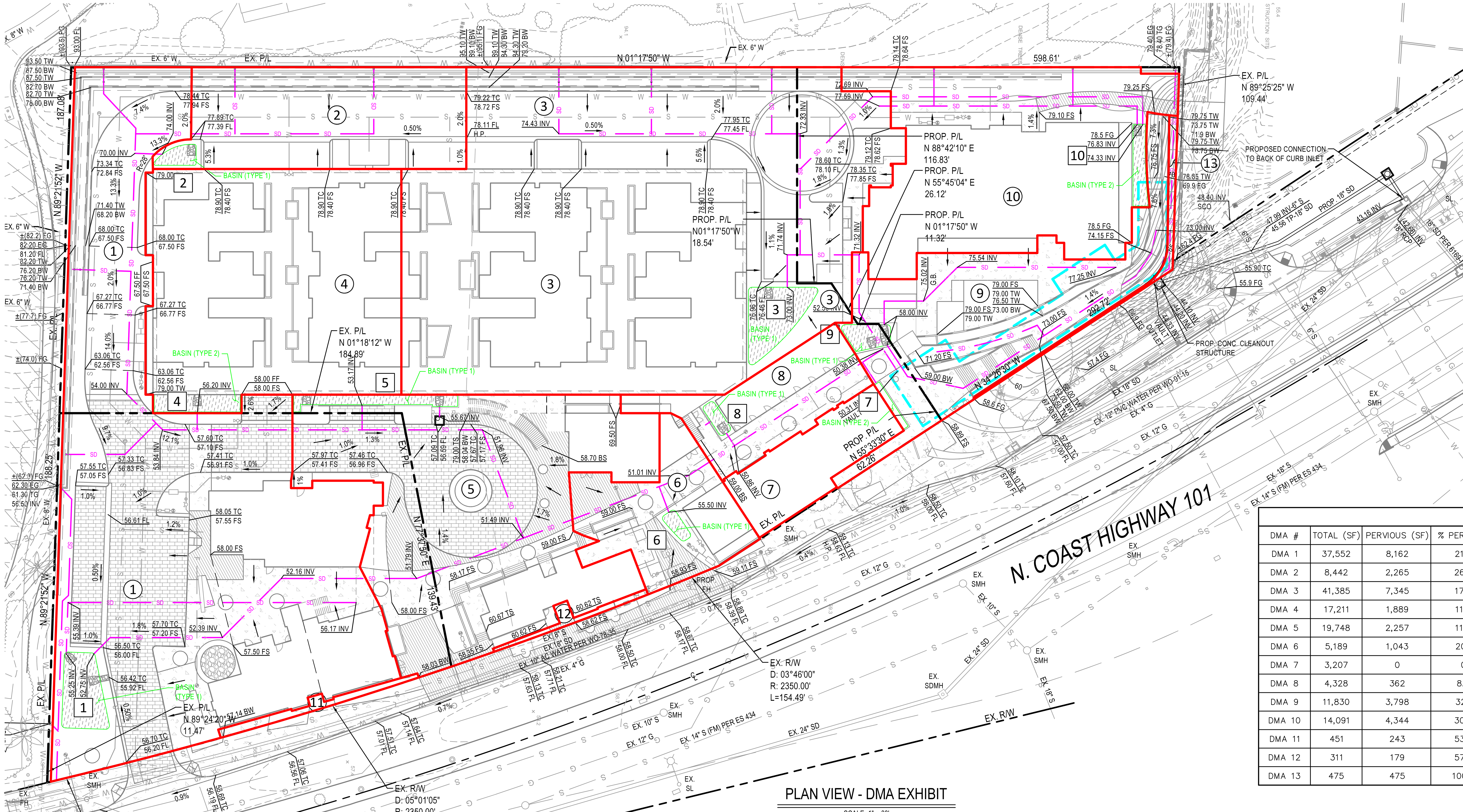
Use this checklist to ensure the required information has been included on the DMA Exhibit:

The DMA Exhibit must identify:

- □ Underlying hydrologic soil group
- □ Approximate depth to groundwater
- □ Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
- □ Critical coarse sediment yield areas to be protected
- □ Existing topography and impervious areas
- □ Existing and proposed site drainage network and connections to drainage offsite
- □ Proposed demolition
- □ Proposed grading
- □ Proposed impervious features
- □ Proposed design features and surface treatments used to minimize imperviousness
- □ Drainage management area (DMA) boundaries, DMA ID numbers, and DMA areas (square footage or acreage), and DMA type (i.e., drains to BMP, self-retaining, or self-mitigating)
- □ Potential pollutant source areas and corresponding required source controls (see Chapter 4, Appendix E.1, and Form I-3B)
- □ Structural BMPs (identify location, type of BMP, and size/detail)

DMA EXHIBIT

FENWAY N. HWY 101



PLAN VIEW - DMA EXHIBIT

SCALE: 1" = 30'

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY
- CENTER LINE OF ROAD
- DRAINAGE BOUNDARY
- PROPOSED BIOFILTRATION BASIN OR FLOW THROUGH PLANTER
- PROPOSED STORM DRAIN LINE — SD —
- PROPOSED UNDERGROUND STORMTRAP DETENTION SYSTEM
- DMA AREA # (X)
- BMP # [X]
- PROPOSED BMP BIOFILTRATION BASIN (TYPE 1 OR TYPE 2) PLANTER PER DETAILS HEREON.

AREA CALCULATIONS

TOTAL SITE AREA:	165,107 SF (3.790 AC)
AREA DISTURBED BY PROJECT:	165,107 SF (3.790 AC)
EXISTING IMPERVIOUS AREA:	76,820 SF (1.764 AC)
PROPOSED IMPERVIOUS AREA:	143,659 SF (3.298 AC)
INCREASE IMPERVIOUS AREA:	66,839 SF (1.534 AC)

SOIL TYPE INFORMATION

SOIL: TYPE B HYDROLOGIC SOILS PER OBSERVED ONSITE / FIELD INFILTRATION RATES PROVIDED IN "GEOTECHNICAL INVESTIGATION - LEUCADIA MIXED-USE " PREPARED BY NOVA SERVICES, INC. AND ONSITE SOIL CLASSIFICATION PROVIDED BY NOVA SERVICES, INC.

GROUNDWATER INFORMATION

GROUNDWATER NOT ENCOUNTERED IN ANY OF THE BORINGS CONDUCTED BY NOVA SERVICES, INC., ACCORDING TO SECTION 4.2.3 OF THE PRELIMINARY GEOTECHNICAL STUDY PREPARED BY NOVA SERVICES, INC. CONCLUSION IN REPORT STATES THAT GROUNDWATER "THUS OCCURS BELOW ABOUT EI + 10 MSL, AT LEAST 48 FEET BELOW THE FINISHED FLOOR OF THE LOWEST PARKING LEVEL (SET +58 MSL)."

TREATMENT CONTROL BMPS

BIOFILTRATION BF-1

POTENTIAL POLLUTANT SOURCE AREAS

TRASH DUMPESTERS, ROOFS, PARKING LOTS, LANDSCAPING, RESTAURANT(S), WATER FEATURES, AND OUTDOOR STORAGE AREAS.

SOURCE CONTROLS

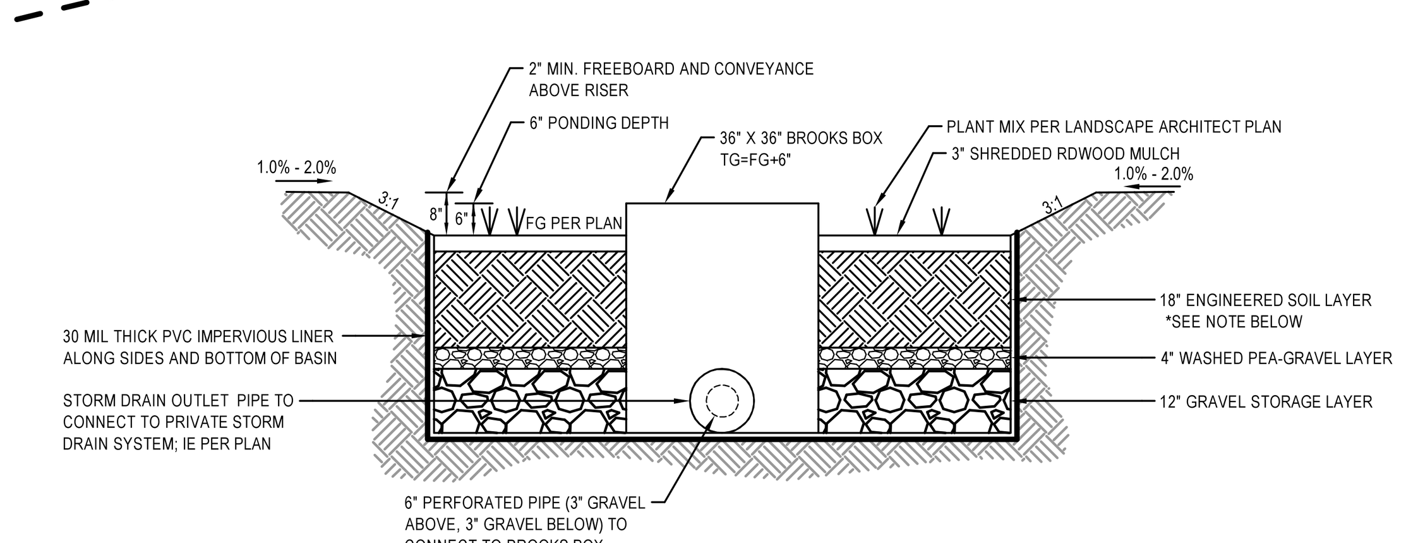
SC-1: PREVENTION OF ILLICIT DISCHARGES INTO THE MS4
SC-2: STORM DRAIN STENCILING OR SIGNAGE
SC-5: PROTECT TRASH STORAGE AREAS FROM RAINFALL, RUN-ON, RUNOFF, AND WIND DISPERSAL
SC-6: ADDITIONAL BMPS BASED ON POTENTIAL SOURCES ON RUNOFF POLLUTANTS

NOTE

PROJECT SITE WILL MAINTAIN AND FOLLOW SAME WATER QUALITY DESIGN PROPOSED WITHIN THE CITY'S HIGHWAY 101 STREETSCAPE PROJECT FOR RIGHT-OF-WAY IN FRONT OF PROJECT SITE.

DMA AREAS

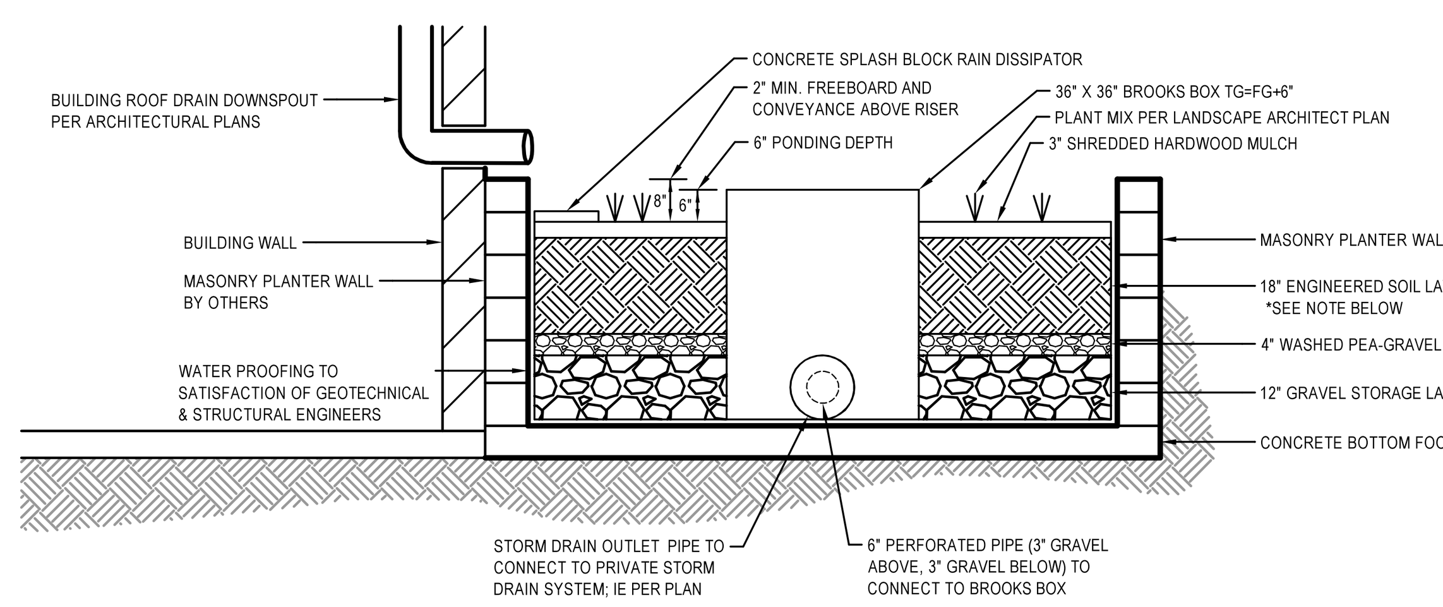
DMA #	TOTAL (SF)	PERVIOUS (SF)	% PERVIOUS	% IMPERVIOUS	MIN. BASIN AREA (SF)	BASIN PROVIDED (SF)	TREATMENT BMP(S)
DMA 1	37,552	8,162	21.7	78.3	867	870	1
DMA 2	8,442	2,265	26.8	73.2	187	196	2
DMA 3	41,385	7,345	17.7	82.3	981	983	3
DMA 4	17,211	1,889	11.0	89.0	429	434	4
DMA 5	19,748	2,257	11.4	88.6	492	500	5
DMA 6	5,189	1,043	20.1	79.9	121	128	6
DMA 7	3,207	0	0	100	87	93	7
DMA 8	4,328	362	8.4	91.6	110	132	8
DMA 9	11,830	3,798	32.1	67.9	252	301	9
DMA 10	14,091	4,344	30.8	69.2	304	305	10
DMA 11	451	243	53.9	46.1	–	–	SELF MITIGATING
DMA 12	311	179	57.6	42.4	–	–	SELF MITIGATING
DMA 13	475	475	100.0	0	–	–	SELF MITIGATING



*BIOFILTRATION "ENGINEERED SOIL" LAYER SHALL BE EVENLY MIXED COMPOSITION OF WASHED SAND, SANDY LOAM TOPSOIL, AND HUMIC COMPOST. THE MIX SHALL CONTAIN 65% SAND, 20% TOPSOIL, AND 15% COMPOST OR HARDWOOD MULCH IN ACCORDANCE WITH COUNTY OF SAN DIEGO LID BIOSWALE MEDIA BIO65 CUT SHEET

TYPICAL SECTION - BIOFILTRATION BASIN TYPE 1

FUNCTIONS AS BIOFILTRATION BF-1
SCALE: NOT TO SCALE



*BIOFILTRATION "ENGINEERED SOIL" LAYER SHALL BE EVENLY MIXED COMPOSITION OF WASHED SAND, SANDY LOAM TOPSOIL, AND HUMIC COMPOST. THE MIX SHALL CONTAIN 65% SAND, 20% TOPSOIL, AND 15% COMPOST OR HARDWOOD MULCH IN ACCORDANCE WITH COUNTY OF SAN DIEGO LID BIOSWALE MEDIA BIO65 CUT SHEET

TYPICAL SECTION - BIOFILTRATION BASIN TYPE 2

FUNCTIONS AS BIOFILTRATION BF-1
SCALE: NOT TO SCALE

SCALE: 1" = 30'
30 15 0 30 60 90

ATTACHMENT 1A: DMA EXHIBIT
FENWAY N. HWY 101
CITY OF ENCINITAS

PASCO LARET SUITER & ASSOCIATES
San Diego | Solana Beach | Orange County
Phone 949.661.6695 | www.plsaengineering.com

ATTACHMENT 1c

Worksheet B.3-1. Harvest and Use Feasibility Screening

Harvest and Use Feasibility Screening	**Worksheet B.3-1**

1. Is there a demand for harvested water (check all that apply) at the project site that is reliably present during the wet season?
✓Toilet and urinal flushing
✓ Landscape irrigation
Other:_____

2. If there is a demand; estimate the anticipated average wet season demand over a period of 36 hours. Guidance for planning level demand calculations for toilet/urinal flushing and landscape irrigation is provided in Section B.3.2.

Toilet/Urinal Flushing Residences and Hotel
(9.3 gal/person-day) x (0.13368 cuft/gal) x (1.5 days) = 1.86 cuft/person-36hr
Assume (400 people) x (1.86 cuft/person-36 hr) = 744 cuft/36hr

Toilet/Urinal Flushing Retail
(7x1.4 gal/person-day) x (0.13368 cuft/gal) x (1.5 days) = 1.97 cuft/person-36hr
Assume (18 people) x (1.97 cuft/person-36 hr) = 36 cuft/36hr

Landscape Irrigation
(0.76 ac irrigated) x (390 gal/ac-36hr) x (0.13368 cuft/gal) = 40 cuft/36hr

Total = 744 cuft + 36 cuft + 40 cuft = 820 cuft

3. Calculate the DCV using worksheet B-2.1.

DCV = 5,977 cuft

3a. Is the 36-hour demand greater than or equal to the DCV?	3b. Is the 36-hour demand greater than 0.25DCV but less than the full DCV?	3c. Is the 36-hour demand less than 0.25DCV?
Yes / ✓ No	Yes / ✓ No	✓ Yes
Harvest and use appears to be feasible. Conduct more detailed evaluation and sizing calculations to confirm that DCV can be used at an adequate rate to meet drawdown criteria.	Harvest and use may be feasible. Conduct more detailed evaluation and sizing calculations to determine feasibility. Harvest and use may only be able to be used for a portion of the site, or (optionally) the storage may need to be upsized to meet long term capture targets while draining in longer than 36 hours.	✓ Harvest and use is considered to be infeasible.

ATTACHMENT 1d

Categorization of Infiltration Feasibility Condition	Form I-8

Part 1 - Full Infiltration Feasibility Screening Criteria

Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
1	**Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.	**X**	

Provide basis:

The infiltration rate of the existing soils for locations P-1 and P-2, based on the on-site infiltration study was calculated to be greater than 0.5 inches per hour (1.51 inches per hour and 1.74 inches per hour for P-1 and P-2, respectively) after applying a minimum factor of safety (F) of F=2.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.

2	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.		**X**

Infiltration of water has the potential to result in an increased risk of slope failure of existing slopes and nearby coastal bluff zones. As such, BMPs are not suitable for any location on site.

Form I-8 Page 2 of 4			
Criteria	Screening Question	**Yes**	**No**
3	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination (shallow water table, stormwater pollutants or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.		
Provide basis: *Water contamination was not evaluated by NOVA Services.* Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
4	**Can infiltration greater than 0.5 inches per hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams or increased discharge of contaminated groundwater to surface waters?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.		
Provide basis: *The potential for water balance was not evaluated by NOVA Services.* Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability.			
Part 1 Result *	If all answers to rows 1 - 4 are "**Yes**" a full infiltration design is potentially feasible. The feasibility screening category is **Full Infiltration** If any answer from row 1-4 is "**No**", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design. Proceed to Part 2	*Proceed to Part 2*	

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings

Form I-8 Page 3 of 4

Part 2 – Partial Infiltration vs. No Infiltration Feasibility Screening Criteria

Would infiltration of water in any appreciable amount be physically feasible without any negative consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
5	**Do soil and geologic conditions allow for infiltration in any appreciable rate or volume?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.	**X**	

Provide basis:

The infiltration rate of the existing soils for locations P-1 and P-2, based on the on-site infiltration study was calculated to be greater than 0.5 inches per hour (1.51 inches per hour and 1.74 inches per hour for P-1 and P-2, respectively) after applying a minimum factor of safety (F) of F=2.

The soil and geologic conditions allow for infiltration but not without increasing the risk of geotechnical hazards.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

6	**Can Infiltration in any appreciable quantity be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.		**X**

Provide basis:

Infiltration of water has the potential to result in an increased risk of slope failure of existing slopes and nearby coastal bluff zones. As such, BMPs are not suitable for any location on site.

Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.

Form I-8 Page 4 of 4			
Criteria	Screening Question	**Yes**	**No**
7	**Can Infiltration in any appreciable quantity be allowed without posing significant risk for groundwater related concerns (shallow water table, stormwater pollutants or other factors)?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.		
Provide basis: *Water contamination was not evaluated by NOVA Services.* Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
8	**Can infiltration be allowed without violating downstream water rights**? The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.		
Provide basis: *The potential for water balance was not evaluated by NOVA Services.* Summarize findings of studies; provide reference to studies, calculations, maps, data sources, etc. Provide narrative discussion of study/data source applicability and why it was not feasible to mitigate low infiltration rates.			
Part 2 Result*	If all answers from row 1-4 are yes then partial infiltration design is potentially feasible. The feasibility screening category is **Partial Infiltration.** If any answer from row 5-8 is no, then infiltration of any volume is considered to be **infeasible** within the drainage area. The feasibility screening category is **No Infiltration.**	*No Infiltration*	

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings

ATTACHMENT 1e

3161 Leucadia 101
3/31/2021

Appendix B: Stormwater Pollutant Control Hydrologic Calculations and Sizing Methods

Worksheet B.2-1. DCV

DMA 1

Design Capture Volume		**Worksheet B-2.1**		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.56	inches
2	Area tributary to BMP (s)	A=	0.86	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.77	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	1346	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	29390	0.9	26451	
Pervious Pavers		0.1	0	
Landscape	8162	0.3	2448.6	
Total	37552		28900	0.77

DMA 2

Design Capture Volume		**Worksheet B-2.1**		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.56	inches
2	Area tributary to BMP (s)	A=	0.19	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.74	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	286	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	6177	0.9	5559.3	
Pervious Pavers		0.1	0	
Landscape	2265	0.3	679.5	
Total	8442		6239	0.74

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Appendix B: Stormwater Pollutant Control Hydrologic Calculations and Sizing Methods

Worksheet B.2-1. DCV

DMA 3

Design Capture Volume		**Worksheet B-2.1**		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.56	inches
2	Area tributary to BMP (s)	A=	0.95	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.79	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	1526	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	34040	0.9	30636	
Pervious Pavers		0.1	0	
Landscape	7345	0.3	2203.5	
Total	41385		32840	0.79

DMA 4

Design Capture Volume		**Worksheet B-2.1**		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.56	inches
2	Area tributary to BMP (s)	A=	0.395	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.83	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	666	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	15322	0.9	13789.8	
Pervious Pavers		0.1	0	
Landscape	1889	0.3	566.7	
Total	17211		14357	0.83

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Appendix B: Stormwater Pollutant Control Hydrologic Calculations and Sizing Methods

Worksheet B.2-1. DCV

DMA 5

Design Capture Volume		**Worksheet B-2.1**		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.56	inches
2	Area tributary to BMP (s)	A=	0.45	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.83	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	759	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	17491	0.9	15741.9	
Pervious Pavers		0.1	0	
Landscape	2257	0.3	677.1	
Total	19748		16419	0.83

DMA 6

Design Capture Volume		**Worksheet B-2.1**		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.56	inches
2	Area tributary to BMP (s)	A=	0.12	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.78	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	190	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	4146	0.9	3731.4	
Pervious Pavers		0.1	0	
Landscape	1043	0.3	312.9	
Total	5189		4044	0.78

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Appendix B: Stormwater Pollutant Control Hydrologic Calculations and Sizing Methods

Worksheet B.2-1. DCV

DMA 7

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.56	inches
2	Area tributary to BMP (s)	A=	0.07	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.90	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	128	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	3207	0.9	2886.3	
Pervious Pavers		0.1	0	
Landscape	0	0.3	0	
Total	3207		2886	0.90

DMA 8

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.56	inches
2	Area tributary to BMP (s)	A=	0.1	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.85	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	173	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	3966	0.9	3569.4	
Pervious Pavers		0.1	0	
Landscape	362	0.3	108.6	
Total	4328		3678	0.85

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Appendix B: Stormwater Pollutant Control Hydrologic Calculations and Sizing Methods

Worksheet B.2-1. DCV

DMA 9

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.56	inches
2	Area tributary to BMP (s)	A=	0.27	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.71	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	390	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	8032	0.9	7228.8	
Pervious Pavers		0.1	0	
Landscape	3798	0.3	1139.4	
Total	11830		8368	0.71

DMA 10

Design Capture Volume		Worksheet B-2.1		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.56	inches
2	Area tributary to BMP (s)	A=	0.32	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.72	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	468	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	9747	0.9	8772.3	
Pervious Pavers		0.1	0	
Landscape	4344	0.3	1303.2	
Total	14091		10076	0.72

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Appendix B: Stormwater Pollutant Control Hydrologic Calculations and Sizing Methods

Worksheet B.2-1. DCV

DMA 11

Design Capture Volume		**Worksheet B-2.1**		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.56	inches
2	Area tributary to BMP (s)	A=	0.01	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.58	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	12	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	208	0.9	187.2	
Pervious Pavers		0.1	0	
Landscape	243	0.3	72.9	
Total	451		260	0.58

DMA 12

Design Capture Volume		**Worksheet B-2.1**		
1	85th percentile 24-hr storm depth from Figure B.1-1	d=	0.56	inches
2	Area tributary to BMP (s)	A=	0.007	acres
3	Area weighted runoff factor (estimate using Appendix B.1.1 and B.2.1) * See calculation below	C=	0.55	unitless
4	Street trees volume reduction	TCV=	0	cubic-feet
5	Rain barrels volume reduction (1 cubic foot=7.48 gallons)	RCV=	0	cubic-feet
6	Calculate DCV = (3630 x C x d x A) – TCV - RCV	DCV=	8	cubic-feet

	Area (sq ft)	Runoff Factor	A x RF	Weighted RF
Impervious	132	0.9	118.8	
Pervious Pavers		0.1	0	
Landscape	179	0.3	53.7	
Total	311		173	0.55

DMA 1

Simple Sizing Method for Biofiltration BMPs		Worksheet B.5-1	
1	Remaining DCV after implementing retention BMPs	1346.0	cu-ft
Partial Retention			
2	Infiltration rate from Worksheet D.5-1 if partial infiltration is feasible	0.00	in/hr
3	Allowable drawdown time for aggregate storage below the underdrain	36	hours
4	Depth of runoff that can be infiltrated [Line 2 x Line 3]	0.00	inches
5	Aggregate pore space	0.40	in/in
6	Required depth of gravel below the underdrain [Line 4 / Line 5]	0.00	inches
7	Assumed surface area of the biofiltration BMP	867.0	sq-ft
8	Media retained pore space	0.1	in/in
9	Volume retained by BMP [[Line 4 + (Line 12 x Line 8)]/12] x Line 7	130.05	cu-ft
10	DCV that requires biofiltration [Line 1 - Line 9]	1216.0	cu-ft
BMP Parameters			
11	Surface Ponding [6 inch minimum, 12 inch maximum]	6	inches
12	Media Thickness [18 in minimum]	18	inches
13	Aggregate Storage above underdrain invert (12 inches typical) - Use 0 inches for sizing if the aggregate is not over the entire bottom surface area	9	inches
14	Media available pore space	0.2	in/in
15	Media filtration rate to be used for sizing	5	in/hr
Baseline Calculations			
16	Allowable Routing Time for sizing	6	hours
17	Depth filtered during storm [Line 15 x Line 16]	30	inches
18	Depth of Detention Storage [Line 11 + (Line 12 x Line 14) + (Line 13 x Line 5)]	13.20	inches
19	Total Depth Treated [Line 17 + Line 18]	43.20	inches
Option 1 - Biofilter 1.5 times the DCV			
20	Required biofiltered volume [1.5 x Line 10]	1824	cu-ft
21	Required Footprint [Line 20 / Line 19] x 12	506.6	sq-ft
Option 2 - Store 0.75 of remaining DCV in pores and ponding			
22	Required Storage (surface + pores) Volume [0.75 x Line 10]	912	cu-ft
23	Required Footprint [Line 22 / Line 18] x 12	829	sq-ft
Footprint of the BMP			
24	Area draining to the BMP	37552	sq-ft
25	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)	0.77	
26	Minimum BMP Footprint [Line 24 x Line 25 x 0.03]	867	sq-ft
27	Footprint of the BMP = Maximum (Minimum(Line 21, Line 23), Line 27)	867	sq-ft

DMA 2

Simple Sizing Method for Biofiltration BMPs		Worksheet B.5-1	
1	Remaining DCV after implementing retention BMPs	286.0	cu-ft
Partial Retention			
2	Infiltration rate from Worksheet D.5-1 if partial infiltration is feasible	0.00	in/hr
3	Allowable drawdown time for aggregate storage below the underdrain	36	hours
4	Depth of runoff that can be infiltrated [Line 2 x Line 3]	0.00	inches
5	Aggregate pore space	0.40	in/in
6	Required depth of gravel below the underdrain [Line 4 / Line 5]	0.00	inches
7	Assumed surface area of the biofiltration BMP	192.0	sq-ft
8	Media retained pore space	0.1	in/in
9	Volume retained by BMP [[Line 4 + (Line 12 x Line 8)]/12] x Line 7	28.80	cu-ft
10	DCV that requires biofiltration [Line 1 - Line 9]	257.2	cu-ft
BMP Parameters			
11	Surface Ponding [6 inch minimum, 12 inch maximum]	6	inches
12	Media Thickness [18 in minimum]	18	inches
13	Aggregate Storage above underdrain invert (12 inches typical) - Use 0 inches for sizing if the aggregate is not over the entire bottom surface area	9	inches
14	Media available pore space	0.2	in/in
15	Media filtration rate to be used for sizing	5	in/hr
Baseline Calculations			
16	Allowable Routing Time for sizing	6	hours
17	Depth filtered during storm [Line 15 x Line 16]	30	inches
18	Depth of Detention Storage [Line 11 + (Line 12 x Line 14) + (Line 13 x Line 5)]	13.20	inches
19	Total Depth Treated [Line 17 + Line 18]	43.20	inches
Option 1 - Biofilter 1.5 times the DCV			
20	Required biofiltered volume [1.5 x Line 10]	386	cu-ft
21	Required Footprint [Line 20 / Line 19] x 12	107.2	sq-ft
Option 2 - Store 0.75 of remaining DCV in pores and ponding			
22	Required Storage (surface + pores) Volume [0.75 x Line 10]	193	cu-ft
23	Required Footprint [Line 22 / Line 18] x 12	175	sq-ft
Footprint of the BMP			
24	Area draining to the BMP	8442	sq-ft
25	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)	0.74	
26	Minimum BMP Footprint [Line 24 x Line 25 x 0.03]	187	sq-ft
27	Footprint of the BMP = Maximum (Minimum(Line 21, Line 23), Line 27)	187	sq-ft

DMA 3

Simple Sizing Method for Biofiltration BMPs		Worksheet B.5-1	
1	Remaining DCV after implementing retention BMPs	1526.0	cu-ft
Partial Retention			
2	Infiltration rate from Worksheet D.5-1 if partial infiltration is feasible	0.00	in/hr
3	Allowable drawdown time for aggregate storage below the underdrain	36	hours
4	Depth of runoff that can be infiltrated [Line 2 x Line 3]	0.00	inches
5	Aggregate pore space	0.40	in/in
6	Required depth of gravel below the underdrain [Line 4 / Line 5]	0.00	inches
7	Assumed surface area of the biofiltration BMP	981.0	sq-ft
8	Media retained pore space	0.1	in/in
9	Volume retained by BMP [[Line 4 + (Line 12 x Line 8)]/12] x Line 7	147.15	cu-ft
10	DCV that requires biofiltration [Line 1 - Line 9]	1378.9	cu-ft
BMP Parameters			
11	Surface Ponding [6 inch minimum, 12 inch maximum]	6	inches
12	Media Thickness [18 in minimum]	18	inches
13	Aggregate Storage above underdrain invert (12 inches typical) - Use 0 inches for sizing if the aggregate is not over the entire bottom surface area	9	inches
14	Media available pore space	0.2	in/in
15	Media filtration rate to be used for sizing	5	in/hr
Baseline Calculations			
16	Allowable Routing Time for sizing	6	hours
17	Depth filtered during storm [Line 15 x Line 16]	30	inches
18	Depth of Detention Storage [Line 11 + (Line 12 x Line 14) + (Line 13 x Line 5)]	13.20	inches
19	Total Depth Treated [Line 17 + Line 18]	43.20	inches
Option 1 - Biofilter 1.5 times the DCV			
20	Required biofiltered volume [1.5 x Line 10]	2068	cu-ft
21	Required Footprint [Line 20 / Line 19] x 12	574.5	sq-ft
Option 2 - Store 0.75 of remaining DCV in pores and ponding			
22	Required Storage (surface + pores) Volume [0.75 x Line 10]	1034	cu-ft
23	Required Footprint [Line 22 / Line 18] x 12	940	sq-ft
Footprint of the BMP			
24	Area draining to the BMP	41385	sq-ft
25	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)	0.79	
26	Minimum BMP Footprint [Line 24 x Line 25 x 0.03]	981	sq-ft
27	Footprint of the BMP = Maximum (Minimum(Line 21, Line 23), Line 27)	981	sq-ft

DMA 4

Simple Sizing Method for Biofiltration BMPs		Worksheet B.5-1	
1	Remaining DCV after implementing retention BMPs	666.0	cu-ft
Partial Retention			
2	Infiltration rate from Worksheet D.5-1 if partial infiltration is feasible	0.00	in/hr
3	Allowable drawdown time for aggregate storage below the underdrain	36	hours
4	Depth of runoff that can be infiltrated [Line 2 x Line 3]	0.00	inches
5	Aggregate pore space	0.40	in/in
6	Required depth of gravel below the underdrain [Line 4 / Line 5]	0.00	inches
7	Assumed surface area of the biofiltration BMP	429.0	sq-ft
8	Media retained pore space	0.1	in/in
9	Volume retained by BMP [[Line 4 + (Line 12 x Line 8)]/12] x Line 7	64.35	cu-ft
10	DCV that requires biofiltration [Line 1 - Line 9]	601.7	cu-ft
BMP Parameters			
11	Surface Ponding [6 inch minimum, 12 inch maximum]	6	inches
12	Media Thickness [18 in minimum]	18	inches
13	Aggregate Storage above underdrain invert (12 inches typical) - Use 0 inches for sizing if the aggregate is not over the entire bottom surface area	9	inches
14	Media available pore space	0.2	in/in
15	Media filtration rate to be used for sizing	5	in/hr
Baseline Calculations			
16	Allowable Routing Time for sizing	6	hours
17	Depth filtered during storm [Line 15 x Line 16]	30	inches
18	Depth of Detention Storage [Line 11 + (Line 12 x Line 14) + (Line 13 x Line 5)]	13.20	inches
19	Total Depth Treated [Line 17 + Line 18]	43.20	inches
Option 1 - Biofilter 1.5 times the DCV			
20	Required biofiltered volume [1.5 x Line 10]	902	cu-ft
21	Required Footprint [Line 20 / Line 19] x 12	250.7	sq-ft
Option 2 - Store 0.75 of remaining DCV in pores and ponding			
22	Required Storage (surface + pores) Volume [0.75 x Line 10]	451	cu-ft
23	Required Footprint [Line 22 / Line 18] x 12	410	sq-ft
Footprint of the BMP			
24	Area draining to the BMP	17211	sq-ft
25	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)	0.83	
26	Minimum BMP Footprint [Line 24 x Line 25 x 0.03]	429	sq-ft
27	Footprint of the BMP = Maximum (Minimum(Line 21, Line 23), Line 27)	429	sq-ft

DMA 5

Simple Sizing Method for Biofiltration BMPs		Worksheet B.5-1	
1	Remaining DCV after implementing retention BMPs	759.0	cu-ft
Partial Retention			
2	Infiltration rate from Worksheet D.5-1 if partial infiltration is feasible	0.00	in/hr
3	Allowable drawdown time for aggregate storage below the underdrain	36	hours
4	Depth of runoff that can be infiltrated [Line 2 x Line 3]	0.00	inches
5	Aggregate pore space	0.40	in/in
6	Required depth of gravel below the underdrain [Line 4 / Line 5]	0.00	inches
7	Assumed surface area of the biofiltration BMP	492.0	sq-ft
8	Media retained pore space	0.1	in/in
9	Volume retained by BMP [[Line 4 + (Line 12 x Line 8)]/12] x Line 7	73.80	cu-ft
10	DCV that requires biofiltration [Line 1 - Line 9]	685.2	cu-ft
BMP Parameters			
11	Surface Ponding [6 inch minimum, 12 inch maximum]	6	inches
12	Media Thickness [18 in minimum]	18	inches
13	Aggregate Storage above underdrain invert (12 inches typical) - Use 0 inches for sizing if the aggregate is not over the entire bottom surface area	9	inches
14	Media available pore space	0.2	in/in
15	Media filtration rate to be used for sizing	5	in/hr
Baseline Calculations			
16	Allowable Routing Time for sizing	6	hours
17	Depth filtered during storm [Line 15 x Line 16]	30	inches
18	Depth of Detention Storage [Line 11 + (Line 12 x Line 14) + (Line 13 x Line 5)]	13.20	inches
19	Total Depth Treated [Line 17 + Line 18]	43.20	inches
Option 1 - Biofilter 1.5 times the DCV			
20	Required biofiltered volume [1.5 x Line 10]	1028	cu-ft
21	Required Footprint [Line 20 / Line 19] x 12	285.5	sq-ft
Option 2 - Store 0.75 of remaining DCV in pores and ponding			
22	Required Storage (surface + pores) Volume [0.75 x Line 10]	514	cu-ft
23	Required Footprint [Line 22 / Line 18] x 12	467	sq-ft
Footprint of the BMP			
24	Area draining to the BMP	19748	sq-ft
25	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)	0.83	
26	Minimum BMP Footprint [Line 24 x Line 25 x 0.03]	492	sq-ft
27	Footprint of the BMP = Maximum (Minimum(Line 21, Line 23), Line 27)	492	sq-ft

DMA 6

Simple Sizing Method for Biofiltration BMPs		Worksheet B.5-1	
1	Remaining DCV after implementing retention BMPs	190.0	cu-ft
Partial Retention			
2	Infiltration rate from Worksheet D.5-1 if partial infiltration is feasible	0.00	in/hr
3	Allowable drawdown time for aggregate storage below the underdrain	36	hours
4	Depth of runoff that can be infiltrated [Line 2 x Line 3]	0.00	inches
5	Aggregate pore space	0.40	in/in
6	Required depth of gravel below the underdrain [Line 4 / Line 5]	0.00	inches
7	Assumed surface area of the biofiltration BMP	121.0	sq-ft
8	Media retained pore space	0.1	in/in
9	Volume retained by BMP [[Line 4 + (Line 12 x Line 8)]/12] x Line 7	18.15	cu-ft
10	DCV that requires biofiltration [Line 1 - Line 9]	171.9	cu-ft
BMP Parameters			
11	Surface Ponding [6 inch minimum, 12 inch maximum]	6	inches
12	Media Thickness [18 in minimum]	18	inches
13	Aggregate Storage above underdrain invert (12 inches typical) - Use 0 inches for sizing if the aggregate is not over the entire bottom surface area	9	inches
14	Media available pore space	0.2	in/in
15	Media filtration rate to be used for sizing	5	in/hr
Baseline Calculations			
16	Allowable Routing Time for sizing	6	hours
17	Depth filtered during storm [Line 15 x Line 16]	30	inches
18	Depth of Detention Storage [Line 11 + (Line 12 x Line 14) + (Line 13 x Line 5)]	13.20	inches
19	Total Depth Treated [Line 17 + Line 18]	43.20	inches
Option 1 - Biofilter 1.5 times the DCV			
20	Required biofiltered volume [1.5 x Line 10]	258	cu-ft
21	Required Footprint [Line 20 / Line 19] x 12	71.6	sq-ft
Option 2 - Store 0.75 of remaining DCV in pores and ponding			
22	Required Storage (surface + pores) Volume [0.75 x Line 10]	129	cu-ft
23	Required Footprint [Line 22 / Line 18] x 12	117	sq-ft
Footprint of the BMP			
24	Area draining to the BMP	5189	sq-ft
25	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)	0.78	
26	Minimum BMP Footprint [Line 24 x Line 25 x 0.03]	121	sq-ft
27	Footprint of the BMP = Maximum (Minimum(Line 21, Line 23), Line 27)	121	sq-ft

DMA 7

Simple Sizing Method for Biofiltration BMPs		Worksheet B.5-1	
1	Remaining DCV after implementing retention BMPs	128.0	cu-ft
Partial Retention			
2	Infiltration rate from Worksheet D.5-1 if partial infiltration is feasible	0.00	in/hr
3	Allowable drawdown time for aggregate storage below the underdrain	36	hours
4	Depth of runoff that can be infiltrated [Line 2 x Line 3]	0.00	inches
5	Aggregate pore space	0.40	in/in
6	Required depth of gravel below the underdrain [Line 4 / Line 5]	0.00	inches
7	Assumed surface area of the biofiltration BMP	87.0	sq-ft
8	Media retained pore space	0.1	in/in
9	Volume retained by BMP [[Line 4 + (Line 12 x Line 8)]/12] x Line 7	13.05	cu-ft
10	DCV that requires biofiltration [Line 1 - Line 9]	115.0	cu-ft
BMP Parameters			
11	Surface Ponding [6 inch minimum, 12 inch maximum]	6	inches
12	Media Thickness [18 in minimum]	18	inches
13	Aggregate Storage above underdrain invert (12 inches typical) - Use 0 inches for sizing if the aggregate is not over the entire bottom surface area	9	inches
14	Media available pore space	0.2	in/in
15	Media filtration rate to be used for sizing	5	in/hr
Baseline Calculations			
16	Allowable Routing Time for sizing	6	hours
17	Depth filtered during storm [Line 15 x Line 16]	30	inches
18	Depth of Detention Storage [Line 11 + (Line 12 x Line 14) + (Line 13 x Line 5)]	13.20	inches
19	Total Depth Treated [Line 17 + Line 18]	43.20	inches
Option 1 - Biofilter 1.5 times the DCV			
20	Required biofiltered volume [1.5 x Line 10]	172	cu-ft
21	Required Footprint [Line 20 / Line 19] x 12	47.9	sq-ft
Option 2 - Store 0.75 of remaining DCV in pores and ponding			
22	Required Storage (surface + pores) Volume [0.75 x Line 10]	86	cu-ft
23	Required Footprint [Line 22 / Line 18] x 12	78	sq-ft
Footprint of the BMP			
24	Area draining to the BMP	3207	sq-ft
25	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)	0.90	
26	Minimum BMP Footprint [Line 24 x Line 25 x 0.03]	87	sq-ft
27	Footprint of the BMP = Maximum (Minimum(Line 21, Line 23), Line 27)	87	sq-ft

DMA 8

Simple Sizing Method for Biofiltration BMPs		Worksheet B.5-1	
1	Remaining DCV after implementing retention BMPs	173.0	cu-ft
Partial Retention			
2	Infiltration rate from Worksheet D.5-1 if partial infiltration is feasible	0.00	in/hr
3	Allowable drawdown time for aggregate storage below the underdrain	36	hours
4	Depth of runoff that can be infiltrated [Line 2 x Line 3]	0.00	inches
5	Aggregate pore space	0.40	in/in
6	Required depth of gravel below the underdrain [Line 4 / Line 5]	0.00	inches
7	Assumed surface area of the biofiltration BMP	110.0	sq-ft
8	Media retained pore space	0.1	in/in
9	Volume retained by BMP [[Line 4 + (Line 12 x Line 8)]/12] x Line 7	16.50	cu-ft
10	DCV that requires biofiltration [Line 1 - Line 9]	156.5	cu-ft
BMP Parameters			
11	Surface Ponding [6 inch minimum, 12 inch maximum]	6	inches
12	Media Thickness [18 in minimum]	18	inches
13	Aggregate Storage above underdrain invert (12 inches typical) - Use 0 inches for sizing if the aggregate is not over the entire bottom surface area	9	inches
14	Media available pore space	0.2	in/in
15	Media filtration rate to be used for sizing	5	in/hr
Baseline Calculations			
16	Allowable Routing Time for sizing	6	hours
17	Depth filtered during storm [Line 15 x Line 16]	30	inches
18	Depth of Detention Storage [Line 11 + (Line 12 x Line 14) + (Line 13 x Line 5)]	13.20	inches
19	Total Depth Treated [Line 17 + Line 18]	43.20	inches
Option 1 - Biofilter 1.5 times the DCV			
20	Required biofiltered volume [1.5 x Line 10]	235	cu-ft
21	Required Footprint [Line 20 / Line 19] x 12	65.2	sq-ft
Option 2 - Store 0.75 of remaining DCV in pores and ponding			
22	Required Storage (surface + pores) Volume [0.75 x Line 10]	117	cu-ft
23	Required Footprint [Line 22 / Line 18] x 12	107	sq-ft
Footprint of the BMP			
24	Area draining to the BMP	4328	sq-ft
25	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)	0.85	
26	Minimum BMP Footprint [Line 24 x Line 25 x 0.03]	110	sq-ft
27	Footprint of the BMP = Maximum (Minimum(Line 21, Line 23), Line 27)	110	sq-ft

DMA 9

Simple Sizing Method for Biofiltration BMPs		Worksheet B.5-1	
1	Remaining DCV after implementing retention BMPs	390.0	cu-ft
Partial Retention			
2	Infiltration rate from Worksheet D.5-1 if partial infiltration is feasible	0.00	in/hr
3	Allowable drawdown time for aggregate storage below the underdrain	36	hours
4	Depth of runoff that can be infiltrated [Line 2 x Line 3]	0.00	inches
5	Aggregate pore space	0.40	in/in
6	Required depth of gravel below the underdrain [Line 4 / Line 5]	0.00	inches
7	Assumed surface area of the biofiltration BMP	252.0	sq-ft
8	Media retained pore space	0.1	in/in
9	Volume retained by BMP [[Line 4 + (Line 12 x Line 8)]/12] x Line 7	37.80	cu-ft
10	DCV that requires biofiltration [Line 1 - Line 9]	352.2	cu-ft
BMP Parameters			
11	Surface Ponding [6 inch minimum, 12 inch maximum]	6	inches
12	Media Thickness [18 in minimum]	18	inches
13	Aggregate Storage above underdrain invert (12 inches typical) - Use 0 inches for sizing if the aggregate is not over the entire bottom surface area	9	inches
14	Media available pore space	0.2	in/in
15	Media filtration rate to be used for sizing	5	in/hr
Baseline Calculations			
16	Allowable Routing Time for sizing	6	hours
17	Depth filtered during storm [Line 15 x Line 16]	30	inches
18	Depth of Detention Storage [Line 11 + (Line 12 x Line 14) + (Line 13 x Line 5)]	13.20	inches
19	Total Depth Treated [Line 17 + Line 18]	43.20	inches
Option 1 - Biofilter 1.5 times the DCV			
20	Required biofiltered volume [1.5 x Line 10]	528	cu-ft
21	Required Footprint [Line 20 / Line 19] x 12	146.8	sq-ft
Option 2 - Store 0.75 of remaining DCV in pores and ponding			
22	Required Storage (surface + pores) Volume [0.75 x Line 10]	264	cu-ft
23	Required Footprint [Line 22 / Line 18] x 12	240	sq-ft
Footprint of the BMP			
24	Area draining to the BMP	11830	sq-ft
25	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)	0.71	
26	Minimum BMP Footprint [Line 24 x Line 25 x 0.03]	252	sq-ft
27	Footprint of the BMP = Maximum (Minimum(Line 21, Line 23), Line 27)	252	sq-ft

DMA 10

Simple Sizing Method for Biofiltration BMPs		Worksheet B.5-1	
1	Remaining DCV after implementing retention BMPs	468.0	cu-ft
Partial Retention			
2	Infiltration rate from Worksheet D.5-1 if partial infiltration is feasible	0.00	in/hr
3	Allowable drawdown time for aggregate storage below the underdrain	36	hours
4	Depth of runoff that can be infiltrated [Line 2 x Line 3]	0.00	inches
5	Aggregate pore space	0.40	in/in
6	Required depth of gravel below the underdrain [Line 4 / Line 5]	0.00	inches
7	Assumed surface area of the biofiltration BMP	304.0	sq-ft
8	Media retained pore space	0.1	in/in
9	Volume retained by BMP [[Line 4 + (Line 12 x Line 8)]/12] x Line 7	45.60	cu-ft
10	DCV that requires biofiltration [Line 1 - Line 9]	422.4	cu-ft
BMP Parameters			
11	Surface Ponding [6 inch minimum, 12 inch maximum]	6	inches
12	Media Thickness [18 in minimum]	18	inches
13	Aggregate Storage above underdrain invert (12 inches typical) - Use 0 inches for sizing if the aggregate is not over the entire bottom surface	9	inches
14	Media available pore space	0.2	in/in
15	Media filtration rate to be used for sizing	5	in/hr
Baseline Calculations			
16	Allowable Routing Time for sizing	6	hours
17	Depth filtered during storm [Line 15 x Line 16]	30	inches
18	Depth of Detention Storage [Line 11 + (Line 12 x Line 14) + (Line 13 x Line 5)]	13.20	inches
19	Total Depth Treated [Line 17 + Line 18]	43.20	inches
Option 1 - Biofilter 1.5 times the DCV			
20	Required biofiltered volume [1.5 x Line 10]	634	cu-ft
21	Required Footprint [Line 20 / Line 19] x 12	176.0	sq-ft
Option 2 - Store 0.75 of remaining DCV in pores and ponding			
22	Required Storage (surface + pores) Volume [0.75 x Line 10]	317	cu-ft
23	Required Footprint [Line 22 / Line 18] x 12	288	sq-ft
Footprint of the BMP			
24	Area draining to the BMP	14091	sq-ft
25	Adjusted Runoff Factor for drainage area (Refer to Appendix B.1 and B.2)	0.72	
26	Minimum BMP Footprint [Line 24 x Line 25 x 0.03]	304	sq-ft
27	Footprint of the BMP = Maximum (Minimum(Line 21, Line 23), Line 27)	304	sq-ft

ATTACHMENT 2 - BACKUP FOR PDP HYDROMODIFICATION CONTROL MEASURES

This is the cover sheet for Attachment 2.

□ Mark this box if this attachment is not included because the project is exempt from PDP hydromodification management requirements.

Indicate which items are included behind this cover sheet:

Attachment	Contents	Checklist
Attachment 2a	Hydromodification Management Exhibit (Required)	☑ Included See Hydromodification Management Exhibit Checklist on the back of this Attachment cover sheet.
Attachment 2b	Management of Critical Coarse Sediment Yield Areas (WMAA Exhibit is required, additional analyses are optional) See Section 6.2 of the BMP Design Manual.	☑ Exhibit showing project drainage boundaries marked on City of Encinitas Potential Critical Coarse Sediment Yield Area Map (Required) Optional analyses for Critical Coarse Sediment Yield Area Determination □ 6.2.1 Verification of Geomorphic Landscape Units Onsite □ 6.2.2 Downstream Systems Sensitivity to Coarse Sediment □ 6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite
Attachment 2c	Geomorphic Assessment of Receiving Channels (Optional) See Section 6.3.4 of the BMP Design Manual.	☑ Not performed □ Included □ Submitted as separate stand-alone document
Attachment 2d	Flow Control Facility Design, including Structural BMP Drawdown Calculations and Overflow Design Summary (Required) See Chapter 6 and Appendix G of the BMP Design Manual	☑ Included □ Submitted as separate stand-alone document
Attachment 2e	Vector Control Plan (Required when structural BMPs will not drain in 96 hours)	□ Included ☑ Not required because BMPs will drain in less than 96 hours

Use this checklist to ensure the required information has been included on the Hydromodification Management Exhibit:

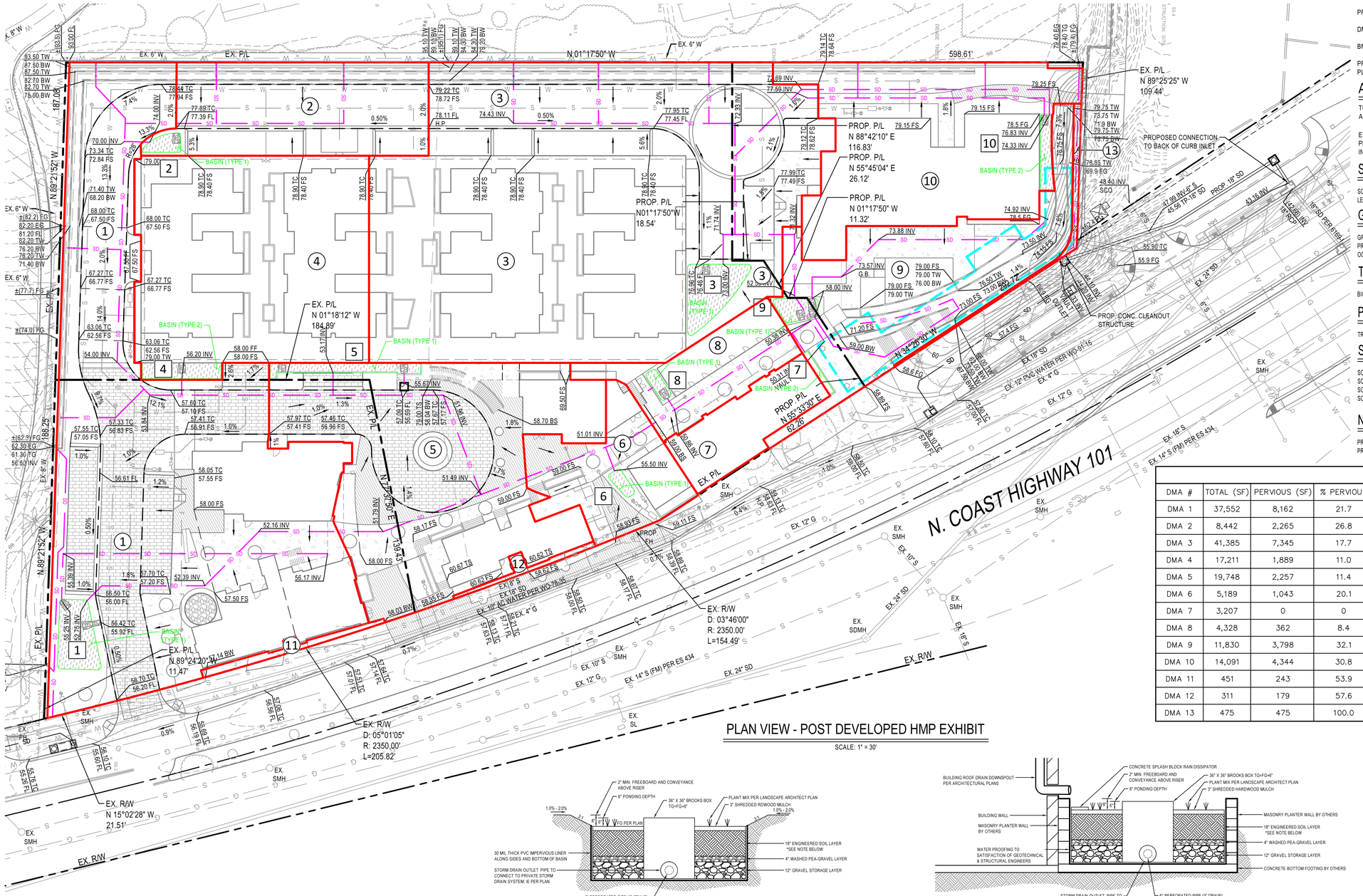
The Hydromodification Management Exhibit must identify:

- □ Underlying hydrologic soil group
- □ Approximate depth to groundwater
- □ Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
- □ Critical coarse sediment yield areas to be protected
- □ Existing topography
- □ Existing and proposed site drainage network and connections to drainage offsite
- □ Proposed grading
- □ Proposed impervious features
- □ Proposed design features and surface treatments used to minimize imperviousness
- □ Point(s) of Compliance (POC) for Hydromodification Management
- □ Existing and proposed drainage boundary and drainage area to each POC (when necessary, create separate exhibits for pre-development and post-project conditions)
- □ Structural BMPs for hydromodification management (identify location, type of BMP, and size/detail)

ATTACHMENT 2a

POST DEVELOPED HMP EXHIBIT

FENWAY N. HWY 101



PLAN VIEW - POST DEVELOPED HMP EXHIBIT

SCALE: 1" = 30'

*BIOFILTRATION "ENGINEERED SOIL" LAYER SHALL BE EVENLY MIXED COMPOSITION OF WASHED SAND, SANDY LOAM TOPSOIL, AND HUMIC COMPOST. THE MIX SHALL CONTAIN 65% SAND, 20% TOPSOIL, AND 15% COMPOST OR HARDWOOD MULCH IN ACCORDANCE WITH COUNTY OF SAN DIEGO LID BIOSWALE MEDIA BIO65 CUT SHEET

TYPICAL SECTION - BIOFILTRATION BASIN TYPE 1

FUNCTIONS AS BIOFILTRATION BF-1

SCALE: NOT TO SCALE

*BIOFILTRATION "ENGINEERED SOIL" LAYER SHALL BE EVENLY MIXED COMPOSITION OF WASHED SAND, SANDY LOAM TOPSOIL, AND HUMIC COMPOST. THE MIX SHALL CONTAIN 65% SAND, 20% TOPSOIL, AND 15% COMPOST OR HARDWOOD MULCH IN ACCORDANCE WITH COUNTY OF SAN DIEGO LID BIOSWALE MEDIA BIO65 CUT SHEET

TYPICAL SECTION - BIOFILTRATION BASIN TYPE 2

FUNCTIONS AS BIOFILTRATION BF-1

SCALE: NOT TO SCALE

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY
- CENTER LINE OF ROAD
- DRAINAGE BOUNDARY
- PROPOSED BIOFILTRATION BASIN OR FLOW THROUGH PLANTER
- PROPOSED STORM DRAIN LINE (SD)
- PROPOSED UNDERGROUND STORMTRAP DETENTION SYSTEM
- DMA AREA # (X)
- BMP # (X)
- PROPOSED BMP BIOFILTRATION BASIN (TYPE 1 OR TYPE 2) PLANTER PER DETAILS HEREON.

AREA CALCULATIONS

TOTAL SITE AREA:	165,107 SF (3.790 AC)
AREA DISTURBED BY PROJECT:	165,107 SF (3.790 AC)
EXISTING IMPERVIOUS AREA:	76,820 SF (1.764 AC)
PROPOSED IMPERVIOUS AREA:	143,659 SF (3.298 AC)
INCREASE IMPERVIOUS AREA:	66,839 SF (1.534 AC)

SOIL TYPE INFORMATION

SOIL: TYPE B HYDROLOGIC SOILS PER OBSERVED ONSITE / FIELD INFILTRATION RATES PROVIDED IN "GEOTECHNICAL INVESTIGATION - LEUCADIA MIXED-USE " PREPARED BY NOVA SERVICES, INC. AND ONSITE SOIL CLASSIFICATION PROVIDED BY NOVA SERVICES, INC.

GROUNDWATER INFORMATION

GROUNDWATER NOT ENCOUNTERED IN ANY OF THE BORINGS CONDUCTED BY NOVA SERVICES, INC., ACCORDING TO SECTION 4.2.3 OF THE PRELIMINARY GEOTECHNICAL STUDY PREPARED BY NOVA SERVICES, INC. CONCLUSION IN REPORT STATES THAT GROUNDWATER "THUS OCCURS BELOW ABOUT EI + 10 MSL, AT LEAST 48 FEET BELOW THE FINISHED FLOOR OF THE LOWEST PARKING LEVEL (SET +58 MSL)."

TREATMENT CONTROL BMPS

BIOFILTRATION BF-1

POTENTIAL POLLUTANT SOURCE AREAS

TRASH DUMPESTERS, ROOFS, PARKING LOTS, LANDSCAPING, RESTAURANT(S), WATER FEATURES, AND OUTDOOR STORAGE AREAS.

SOURCE CONTROLS

SC-1: PREVENTION OF ILLICIT DISCHARGES INTO THE MS4
SC-2: STORM DRAIN STENCILING OR SIGNAGE
SC-5: PROTECT TRASH STORAGE AREAS FROM RAINFALL, RUN-ON, RUNOFF, AND WIND DISPERSAL
SC-6: ADDITIONAL BMPS BASED ON POTENTIAL SOURCES ON RUNOFF POLLUTANTS

NOTE

PROJECT SITE WILL MAINTAIN AND FOLLOW SAME WATER QUALITY DESIGN PROPOSED WITHIN THE CITY'S HIGHWAY 101 STREETSCAPE PROJECT FOR RIGHT-OF-WAY IN FRONT OF PROJECT SITE.

DMA AREAS

DMA #	TOTAL (SF)	PERVIOUS (SF)	% PERVIOUS	% IMPERVIOUS	MIN. BASIN AREA (SF)	BASIN PROVIDED (SF)	TREATMENT BMP(S)
DMA 1	37,552	8,162	21.7	78.3	867	870	1
DMA 2	8,442	2,265	26.8	73.2	187	196	2
DMA 3	41,385	7,345	17.7	82.3	981	983	3
DMA 4	17,211	1,889	11.0	89.0	429	434	4
DMA 5	19,748	2,257	11.4	88.6	492	500	5
DMA 6	5,189	1,043	20.1	79.9	121	128	6
DMA 7	3,207	0	0	100	87	93	7
DMA 8	4,328	362	8.4	91.6	110	132	8
DMA 9	11,830	3,798	32.1	67.9	252	301	9
DMA 10	14,091	4,344	30.8	69.2	304	305	10
DMA 11	451	243	53.9	46.1	–	–	SELF MITIGATING
DMA 12	311	179	57.6	42.4	–	–	SELF MITIGATING
DMA 13	475	475	100.0	0	–	–	SELF MITIGATING

SCALE: 1" = 30'

30 15 0 30 60 90

ATTACHMENT 2A: POST DEVELOPED HMP EXHIBIT

FENWAY N. HWY 101

CITY OF ENCINITAS

PASCO LARET SUITER & ASSOCIATES

San Diego | Solana Beach | Orange County

Phone 949.661.6695 | www.plsaengineering.com

SAVE DATE: 04/15/21 ~ PLOT DATE: 04/15/21 ~ FILE NAME: J:\ACTIVE JOBS\3161 ENCINITAS LEUCADIA 101\CIVIL\REPORTS\SWQMP\Att 2a - HMP Exhibit\3161-HMP Exhibit.dwg

ATTACHMENT 2b

City of Encinitas Web Map - PCCSY

March 27, 2020

N

1 inch = 446 feet

0 240 480

Feet

ATTACHMENT 2d

BMP Sizing Spreadsheet V3.0

Project Name:	101 Leucadia
Project Applicant:	Fenway Capital Advisors
Jurisdiction:	City of Encinitas
Parcel (APN):	216-041-06, 20 and 21
Hydrologic Unit:	904.51
Rain Gauge:	Oceanside
Total Project Area (sf):	166,988
Channel Susceptibility:	High

BMP Sizing Spreadsheet V3.0			
Project Name:	101 Leucadia	Hydrologic Unit:	904.51
Project Applicant:	Fenway Capital Advisors	Rain Gauge:	Oceanside
Jurisdiction:	City of Encinitas	Total Project Area:	166,988
Parcel (APN):	216-041-06, 20 and 21	Low Flow Threshold:	0.1Q2
BMP Name:	Vault	BMP Type:	Cistern
BMP Native Soil Type:	B	BMP Infiltration Rate (in/hr):	NA

Areas Draining to BMP						HMP Sizing Factors	Minimum BMP Size
DMA Name	Area (sf)	Pre Project Soil Type	Pre-Project Slope	Post Project Surface Type	Area Weighted Runoff Factor (Table G.2-1)[1]	Volume	Volume (CF)
1a-10a	133,865	B	Steep	Concrete	1.00	0.16	21418
1b-10b	33,123	B	Steep	Landscape	0.1	0.16	530
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
						0	0
BMP Tributary Area	166,988					Minimum BMP Size	21948
						Proposed BMP Size*	23600

Standard Cistern Depth (Overflow Elevation)	3.5	ft
Provided Cistern Depth (Overflow Elevation)	7.5	ft
Minimum Required Cistern Footprint)	6271	CF

Notes:

1. Runoff factors which are used for hydromodification management flow control (Table G.2-1) are different from the runoff factors used for pollutant control BMP sizing (Table B.1-1). Table references are taken from the San Diego Region Model BMP Design Manu

Describe the BMP's in sufficient detail in your PDP SWQMP to demonstrate the area, volume, and other criteria can be met within the constraints of the site.

BMP's must be adapted and applied to the conditions specific to the development project such as unstable slopes or the lack of available head.
Designated Staff have final review and approval authority over the project design.

This BMP Sizing Spreadsheet has been updated in conformance with the San Diego Region Model BMP Design Manual, April 2018. For questions or concerns please contact the jurisdiction in which your project is located.

BMP Sizing Spreadsheet V3.0			
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Project Applicant:	Fenway Capital Advisors	Rain Gauge:	Oceanside
Jurisdiction:	City of Encinitas	Total Project Area:	166,988
Parcel (APN):	216-041-06, 20 and 21	Low Flow Threshold:	0.1Q2
BMP Name	Vault	BMP Type:	Cistern

DMA Name	Rain Gauge	Pre-developed Condition		Unit Runoff Ratio (cfs/ac)	DMA Area (ac)	Orifice Flow - $\%Q_2$ (cfs)	Orifice Area (in^2)
		Soil Type	Slope				
1a-10a	Oceanside	B	Steep	0.395	3.073	0.121	**1.79**
1b-10b	Oceanside	B	Steep	0.395	0.760	0.030	**0.44**

3.50	**0.151**	**2.23**	**1.69**
Max Orifice Head (feet)	**Max Tot. Allowable Orifice Flow (cfs)**	**Max Tot. Allowable Orifice Area (in^2)**	**Max Orifice Diameter (in)**

Provide Hand Calc.	**0.112**	**1.65**	**1.450**
Average outflow during surface drawdown (cfs)	Max Orifice Outflow (cfs)	Actual Orifice Area (in^2)	Selected Orifice Diameter (in)

Drawdown (Hrs)	Provide Hand Calculation

Vault Drawdown Calculation

Project Name	101 Leucadia		
Project No	3161	Date	7/16/2021

Vault Drawdown	**89.0**	**hrs**

Note: Drawdown time is calculated assuming an initial water surface depth equal to the invert of the lowest surface discharge opening in the vault outlet structure.

Underdrain Orifice Diameter:	**1.45**	in
C:	**0.6**	

Surface Depth (ft)	Volume (cf)	$Q_{orifice}$ (cfs)	ΔT (hr)	Total Time (hr)
7.5	23601	0.150	0.000	0.0
7	22027	0.145	2.960	3.0
6	18880	0.134	6.258	9.2
5	15734	0.122	6.811	16.0
4	12587	0.109	7.549	23.6
3	9440	0.094	8.593	32.2
2	6293	0.076	10.245	42.4
1	3147	0.053	13.523	55.9
0	0	0.000	33.089	89.0

8'-0" STORMTRAP STAGE STORAGE BREAKDOWN	
Elevation	Storage (cubic-feet)
44.31	0
44.56	786.68
44.81	1,573.37
45.06	2,360.05
45.31	3,146.74
45.56	3,933.42
45.81	4,720.11
46.06	5,506.79
46.31	6,293.48
46.56	7,080.16
46.81	7,866.85
47.06	8,653.53
47.31	9,440.22
47.56	10,226.90
47.81	11,013.59
48.06	11,800.27
48.31	12,586.96
48.56	13,373.64
48.81	14,160.33
49.06	14,947.01
49.31	15,733.70
49.56	16,520.38
49.81	17,307.07
49.99	17,866.49
50.06	18,093.75
50.31	18,880.44
50.56	19,667.12
50.81	20,453.81
51.06	21,240.49
51.31	22,027.18
51.56	22,813.86
51.81	23,600.55
52.06	24,387.22
52.31	25,173.92

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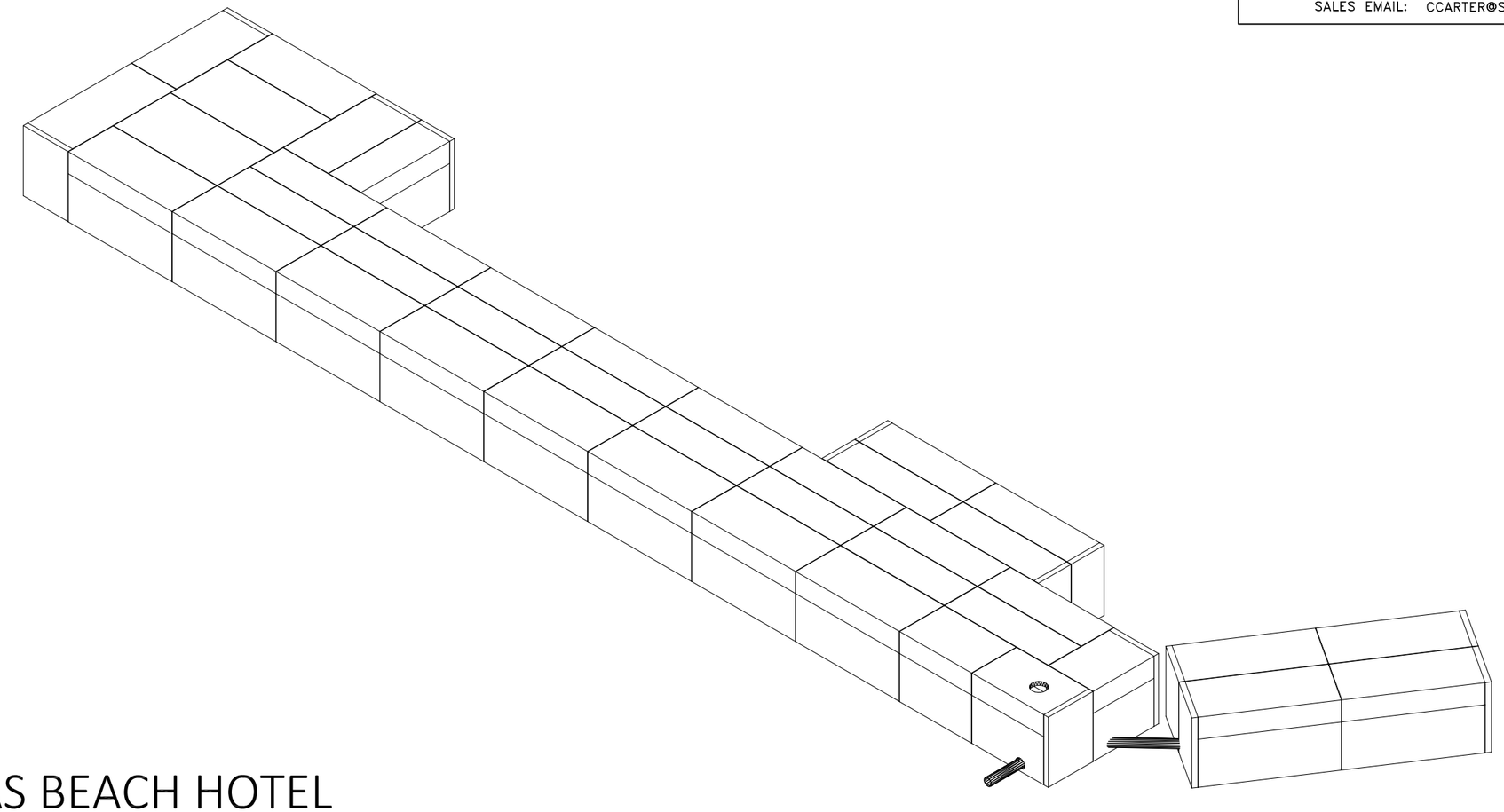
MODULAR CONCRETE
STORMWATER MANAGEMENT



ENCINITAS BEACH HOTEL
LEUCADIA, CA

SHEET INDEX

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SALES EMAIL: CCARTER@STORMTRAP.COM

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COVER SHEET

SHEET NUMBER:

0.0

STRUCTURAL DESIGN LOADING CRITERIA

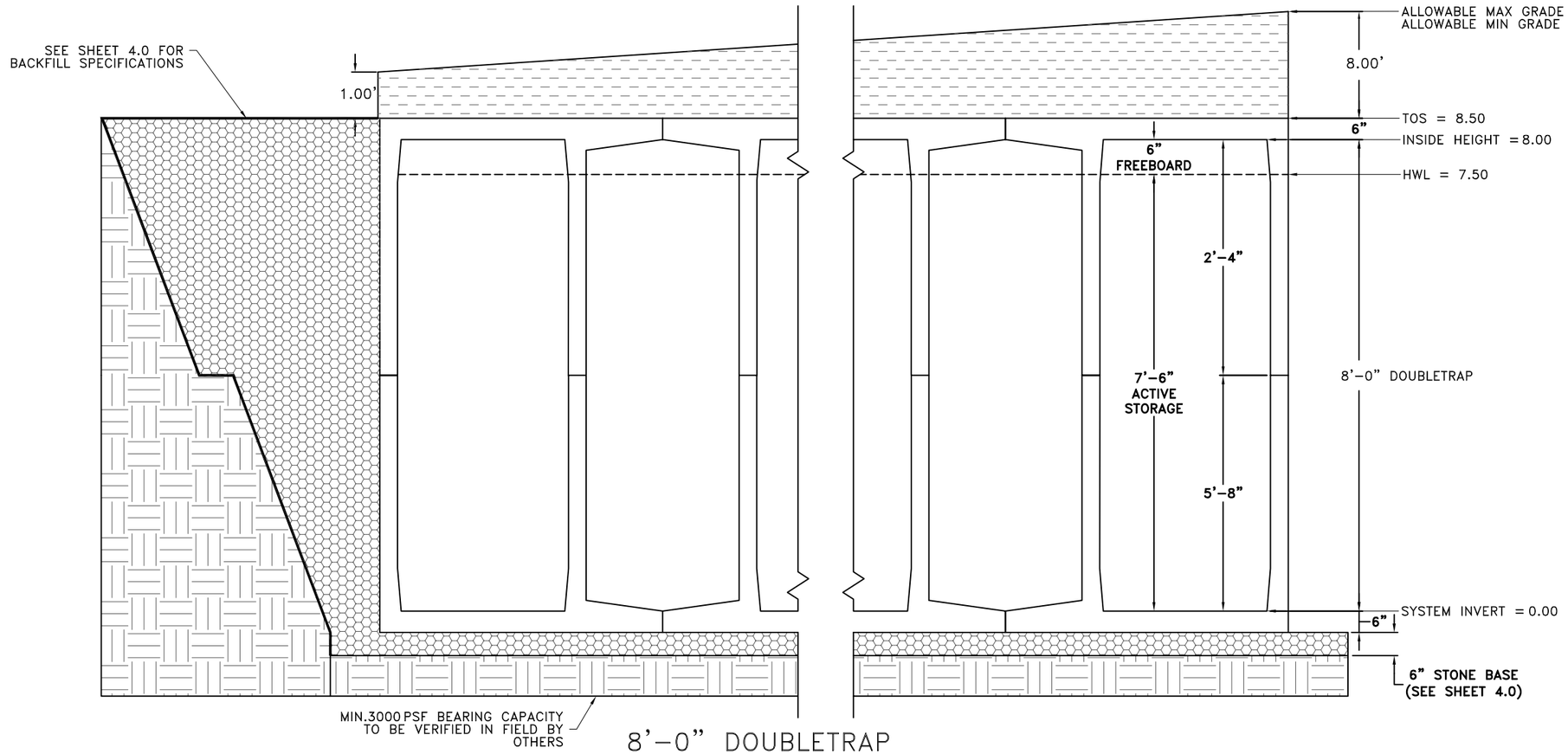
LIVE LOADING:	**AASHTO HS–20 HIGHWAY LOADING**
GROUND WATER TABLE:	BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE:	3000 PSF
SOIL DENSITY:	120 PCF
EQUIVALENT UNSATURATED LATERAL ACTIVE EARTH PRESSURE:	35 PSF / FT.
EQUIVALENT SATURATED LATERAL ACTIVE EARTH PRESSURE:	80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES:	ASTM C857 ACI–318
BACKFILL TYPE:	SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION

TOTAL WATER STORAGE PROV:	25,033.16	CUBIC FEET
WATER STORAGE PROV: ELEV 0.00 – 7.50	23,468.58	CUBIC FEET
UNIT HEADROOM:	8'–0" DOUBLETRAP	
UNIT QUANTITY:	84 TOTAL PIECES	

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 1.00' MAX. 8.00' CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.
5. **SYSTEM DESIGN MAY ALLOW FOR INCIDENTAL LEAKAGE AND WILL NOT BE SUBJECT TO LEAKAGE TESTING.**



8'–0" DOUBLETRAP

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DOUBLETRAP DESIGN CRITERIA

SHEET NUMBER:

1.0

BILL OF MATERIALS

QTY.	UNIT TYPE	DESCRIPTION	TOP WEIGHT	BASE WEIGHT
0	I	8'–0" DOUBLETRAP	0	0
2	II	8'–0" DOUBLETRAP	14286	18560
0	III	8'–0" DOUBLETRAP	0	0
14	IV	8'–0" DOUBLETRAP	12249	17584
0	VII	8'–0" DOUBLETRAP	0	0
11	VII–2	8'–0" DOUBLETRAP	9822	14096
9	VII–4	8'–0" DOUBLETRAP	10017	15352
5	SPIV	8'–0" DOUBLETRAP	VARIES	VARIES
1	SPVII–4	8'–0" DOUBLETRAP	VARIES	VARIES
0	T2 PANEL	8" THICK PANEL	0	
9	T4 PANEL	8" THICK PANEL	5963	
5	T7 PANEL	8" THICK PANEL	4348	
6	JOINT WRAP	150' PER ROLL		
80	JOINT TAPE	14.5' PER ROLL		

LOADING DISCLAIMER:

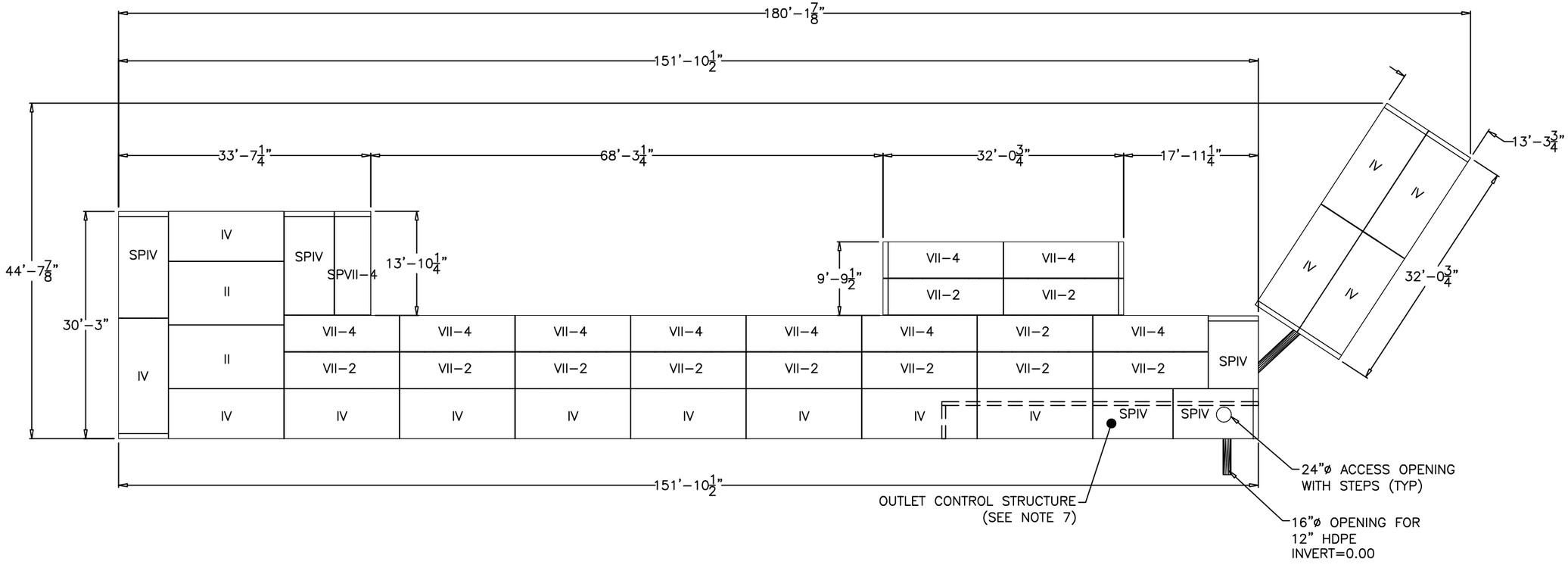
STORMTRAP IS NOT DESIGNED TO ACCEPT ANY ADDITIONAL LOADINGS FROM NEARBY STRUCTURES NEXT TO OR OVER THE TOP OF STORMTRAP. IF ADDITIONAL LOADING CONSIDERATIONS ARE REQUIRED FOR STRUCTURAL DESIGN OF STORMTRAP, PLEASE CONTACT STORMTRAP IMMEDIATELY.

THE STORMTRAP SYSTEM HAS NOT BEEN DESIGNED TO SUPPORT THE ADDITIONAL WEIGHT OF ANY TREES. FURTHERMORE, THE ROOTS OF THE TREES MUST BE CONTAINED TO PREVENT FUTURE DAMAGE TO THE STORMTRAP SYSTEM. STORMTRAP ACCEPTS NO LIABILITY FOR DAMAGES CAUSED BY TREES OR OTHER VEGETATION PLACE AROUND OR ON TOP OF THE SYSTEM.

DESIGN CRITERIA
ALLOWABLE MAX GRADE = 16.50
ALLOWABLE MIN GRADE =9.50
INSIDE HEIGHT ELEVATION =8.00
SYSTEM INVERT = 0.00

NOTES:

1. DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
4. SP – INDICATES A MODULE WITH MODIFICATIONS.
5. P – INDICATES A MODULE WITH A PANEL ATTACHMENT.
6. CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.
7. **IF A WATERTIGHT SOLUTION IS REQUIRED FOR THIS OUTLET CONTROL STRUCTURE, ALL EXTERIOR COLD JOINTS, INCLUDING JOINT BETWEEN TOP AND BASE MODULES, BETWEEN TOP AND BASE OF ADJOINING SYMONS WALLS, AND JOINTS BETWEEN MODULE AND ADJACENT END PANELS WILL BE THE SOLE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO PROVIDE AND INSTALL THE WATERTIGHT APPLICATION PER THE EOR'S SPECIFICATION.**



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DOUBLETRAP SYSTEM LAYOUT

SHEET NUMBER:

2.0

STORMTRAP INSTALLATION SPECIFICATIONS

1. STORMTRAP SHALL BE INSTALLED IN ACCORDANCE WITH ASTM C891, STANDARD FOR INSTALLATION OF UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURES, THE FOLLOWING ADDITIONS AND/OR EXCEPTIONS SHALL APPLY:

2. IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT PROPER/ADEQUATE EQUIPMENT IS USED TO SET/INSTALL THE MODULES.

3. STORMTRAP MODULES CAN BE PLACED ON A LEVEL, 6" FOUNDATION OF ¾" AGGREGATE EXTENDING 2'–0" PAST THE OUTSIDE OF THE SYSTEM (SEE DETAIL 1) AND SHALL BE PLACED ON PROPERLY COMPACTED SOILS (SEE SHEET 1.0 FOR SOIL BEARING CAPACITY REQUIREMENTS), AND IN ACCORDANCE WITH ASTM C891 STANDARD PRACTICE FOR INSTALLATION OF UNDERGROUND PRECAST UTILITY STRUCTURES.

4. THE STORMTRAP MODULES SHALL BE PLACED SUCH THAT THE MAXIMUM SPACE BETWEEN ADJACENT MODULES DOES NOT EXCEED ¾" (SEE DETAIL 2). IF THE SPACE EXCEEDS ¾", THE MODULES SHALL BE RESET WITH APPROPRIATE ADJUSTMENT MADE TO LINE AND GRADE TO BRING THE SPACE INTO SPECIFICATION.

5. STORMTRAP MODULES ARE NOT WATERTIGHT. IF A WATERTIGHT SOLUTION IS REQUIRED, CONTACT STORMTRAP FOR RECOMMENDATIONS. THE WATERTIGHT APPLICATION IS TO BE PROVIDED AND IMPLEMENTED BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THE SELECTED WATERTIGHT SOLUTION PERFORMS AS SPECIFIED BY THE MANUFACTURER.

6. THE PERIMETER HORIZONTAL JOINT BETWEEN THE TOP AND BASE LEG CONNECTION OF THE STORMTRAP MODULES SHALL BE SEALED WITH PREFORMED MASTIC JOINT TAPE ACCORDING TO ASTM C891, 8.8 AND 8.12. (SEE DETAIL 3). THE MASTIC JOINT TAPE DOES NOT PROVIDE A WATERTIGHT SEAL.

7. ALL EXTERIOR JOINTS BETWEEN ADJACENT STORMTRAP MODULES SHALL BE SEALED WITH 8" WIDE PRE–FORMED, COLD–APPLIED, SELF–ADHERING ELASTOMERIC RESIN, BONDED TO A WOVEN , HIGHLY PUNCTURE RESISTANT POLYMER WRAP, CONFORMING TO ASTM C891 AND SHALL BE INTEGRATED WITH PRIMER SEALANT AS APPROVED BY STORMTRAP (SEE DETAILS 4 & 5). THE JOINT WRAP DOES NOT PROVIDE A WATERTIGHT SEAL. THE SOLE PURPOSE OF THE JOINT WRAP IS TO PROVIDE A SILT AND SOIL TIGHT SYSTEM. THE ADHESIVE EXTERIOR JOINT WRAP SHALL BE INSTALLED ACCORDING TO THE FOLLOWING INSTALLATION INSTRUCTIONS:

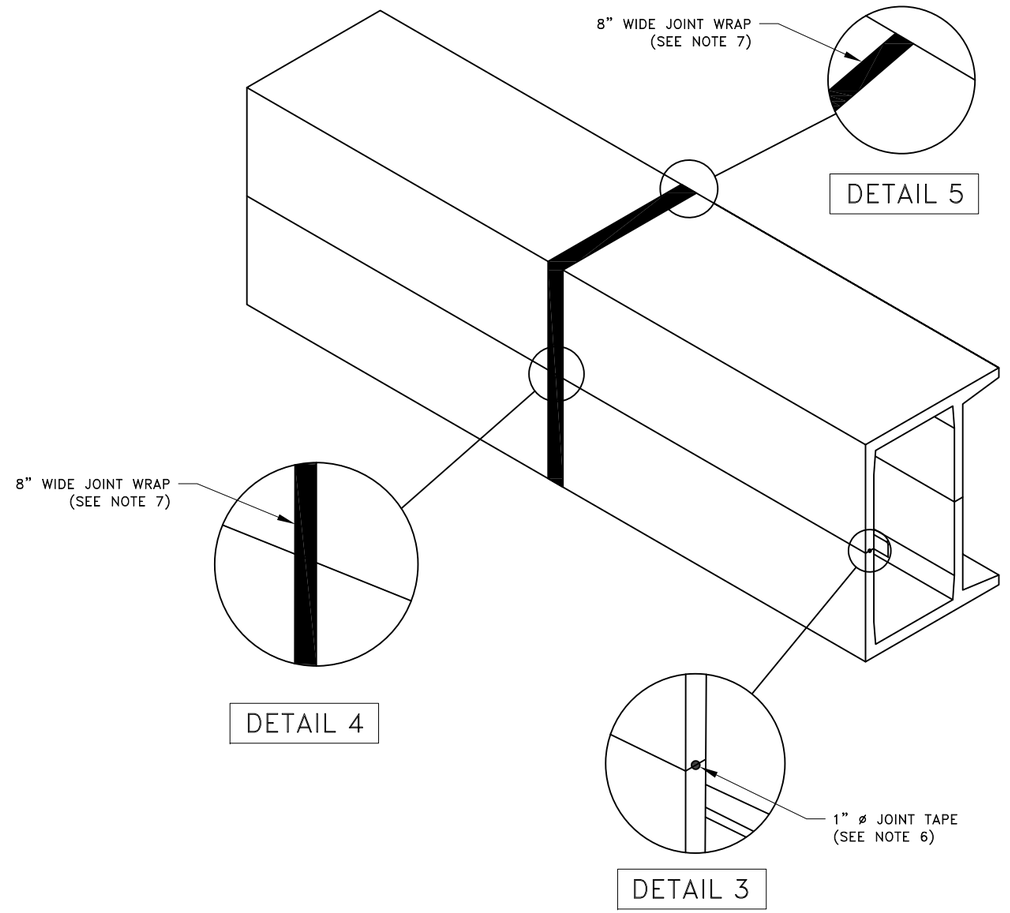
   7.1. USE A BRUSH OR WET CLOTH TO THOROUGHLY CLEAN THE OUTSIDE SURFACE AT THE POINT WHERE JOINT WRAP IS TO BE APPLIED.

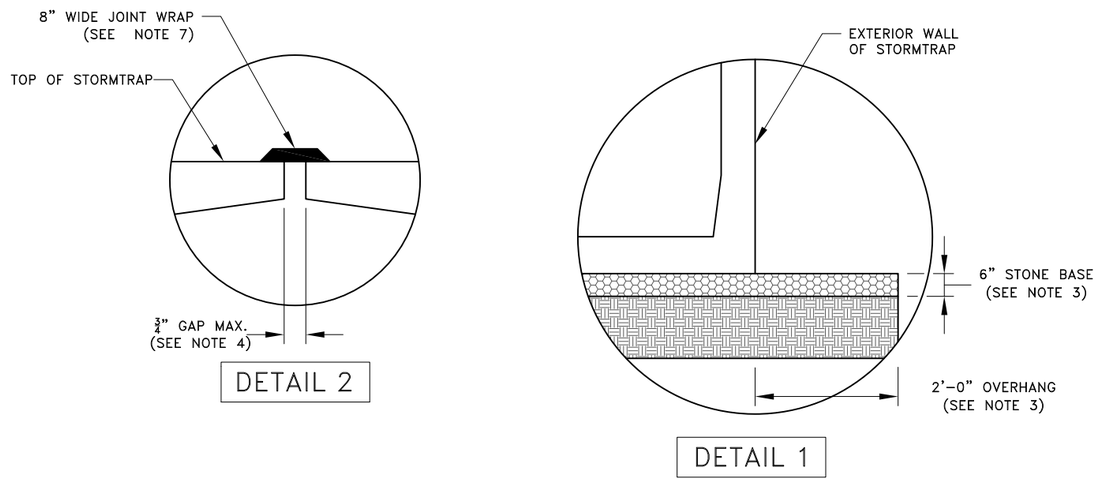
   7.2. A RELEASE PAPER PROTECTS THE ADHESIVE SIDE OF THE JOINT WRAP. PLACE THE ADHESIVE TAPE (ADHESIVE SIDE DOWN) AROUND THE STRUCTURE, REMOVING THE RELEASE PAPER AS YOU GO. PRESS THE JOINT WRAP FIRMLY AGAINST THE STORMTRAP MODULE SURFACE WHEN APPLYING.

8. IF THE CONTRACTOR NEEDS TO CANCEL ANY SHIPMENTS, THEY MUST DO SO 48 HOURS PRIOR TO THEIR SCHEDULED ARRIVAL AT THE JOB SITE. IF CANCELED AFTER THAT TIME, PLEASE CONTACT THE PROJECT MANAGER.

9. IF THE STORMTRAP MODULE(S) IS DAMAGED IN ANY WAY PRIOR, DURING, OR AFTER INSTALL, STORMTRAP MUST BE CONTACTED IMMEDIATELY TO ASSESS THE DAMAGE AND TO DETERMINE WHETHER OR NOT THE MODULE(S) WILL NEED TO BE REPLACED. IF ANY MODULE ARRIVES AT THE JOBSITE DAMAGED DO NOT UNLOAD IT; CONTACT STORMTRAP IMMEDIATELY. ANY DAMAGE NOT REPORTED BEFORE THE TRUCK IS UNLOADED WILL BE THE CONTRACTOR'S RESPONSIBILITY.

10. STORMTRAP MODULES CANNOT BE ALTERED IN ANY WAY AFTER MANUFACTURING WITHOUT WRITTEN CONSENT FROM STORMTRAP.





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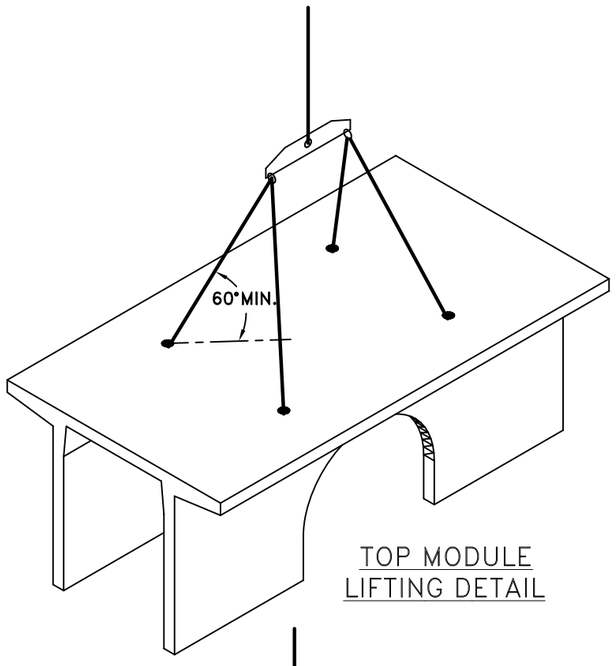
DOUBLETRAP INSTALLATION SPECIFICATIONS

SHEET NUMBER:

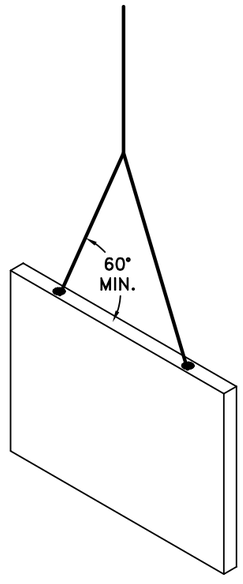
3.0

STORMTRAP MODULE LIFTING INSTALLATION NOTES

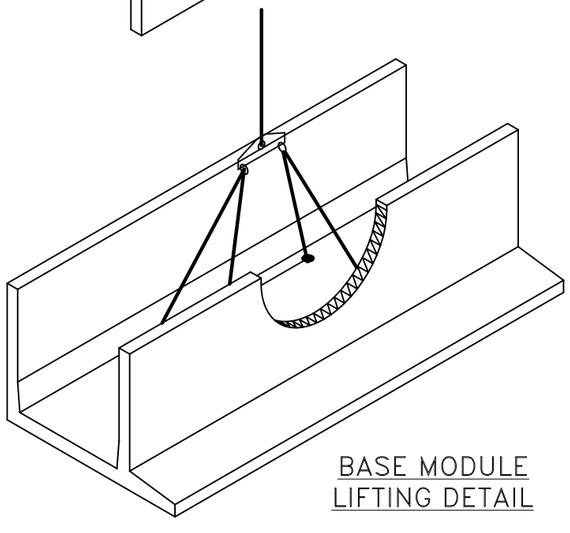
1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL (4) CHAINS/CABLES ARE SECURED PROPERLY TO THE LIFTING ANCHORS AND IN EQUAL TENSION WHEN LIFTING THE STORMTRAP MODULE (SEE RECOMMENDATIONS 2 & 3).
2. MINIMUM 7'–0" CHAIN/CABLE LENGTH TO BE USED TO LIFT STORMTRAP MODULES (SUPPLIED BY CONTRACTOR).
3. CONTRACTOR TO ENSURE MINIMUM LIFTING ANGLE IS 60° FROM TOP SURFACE OF STORMTRAP MODULE. SEE DETAIL.



TOP MODULE LIFTING DETAIL



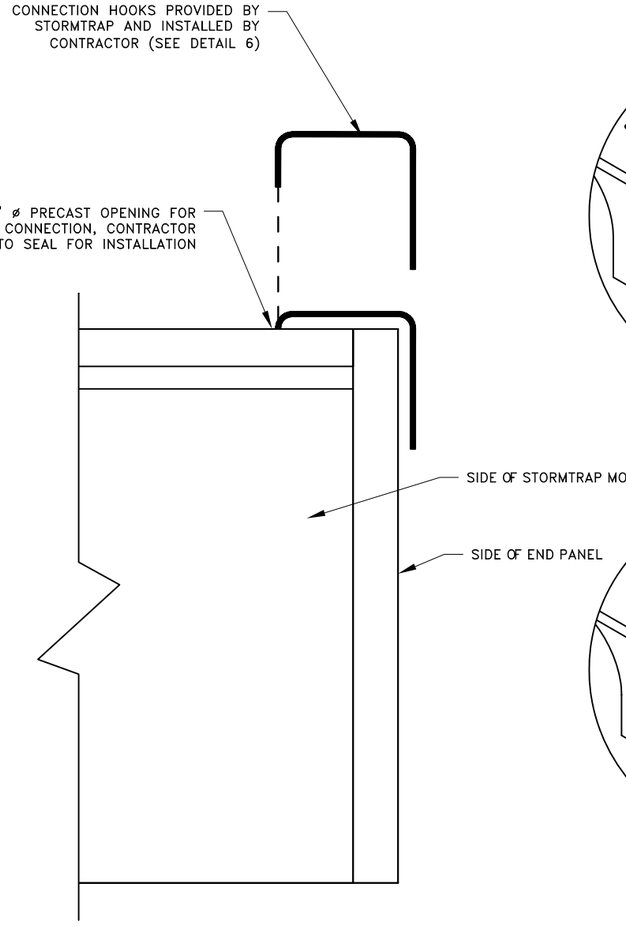
END PANEL LIFTING DETAIL



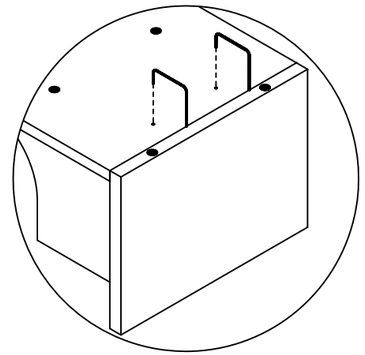
BASE MODULE LIFTING DETAIL

END PANEL ERECTION/INSTALLATION NOTES

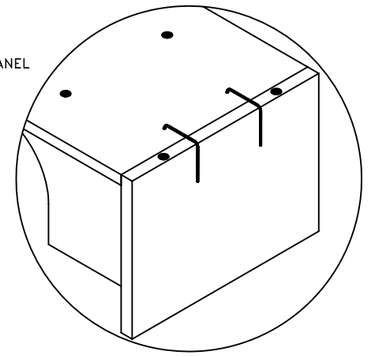
1. END PANELS WILL BE SUPPLIED TO CLOSE OFF OPEN ENDS OF ROWS.
2. PANELS SHALL BE INSTALLED IN A TILT UP FASHION DIRECTLY ADJACENT TO OPEN END OF MODULE (REFER TO SHEET 2.0 FOR END PANEL LOCATIONS).
3. CONNECTION HOOKS WILL BE SUPPLIED WITH END PANELS TO SECURELY CONNECT PANEL TO ADJACENT STORMTRAP MODULE (SEE PANEL CONNECTION ELEVATION VIEW).
4. ONCE CONNECTION HOOK IS ATTACHED, LIFTING CLUTCHES MAY BE REMOVED.
5. JOINT WRAP SHALL BE PLACED AROUND PERIMETER JOINT PANEL (SEE SHEET 3.0).



PANEL CONNECTION ELEVATION VIEW



STEP 1



STEP 2

DETAIL 6

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DOUBLETRAP INSTALLATION SPECIFICATIONS

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3.1

ZONE CHART		
ZONES	ZONE DESCRIPTIONS	REMARKS
ZONE 1	FOUNDATION AGGREGATE	#5 (¾") STONE AGGREGATE (SEE NOTE 4 FOR DESCRIPTION)
ZONE 2	BACKFILL	UNIFIED SOILS CLASSIFICATION (GW, GP, SW, SP) OR SEE BELOW FOR APPROVED BACKFILL OPTIONS
ZONE 3	FINAL COVER OVERTOP	MATERIALS NOT TO EXCEED 120 PCF

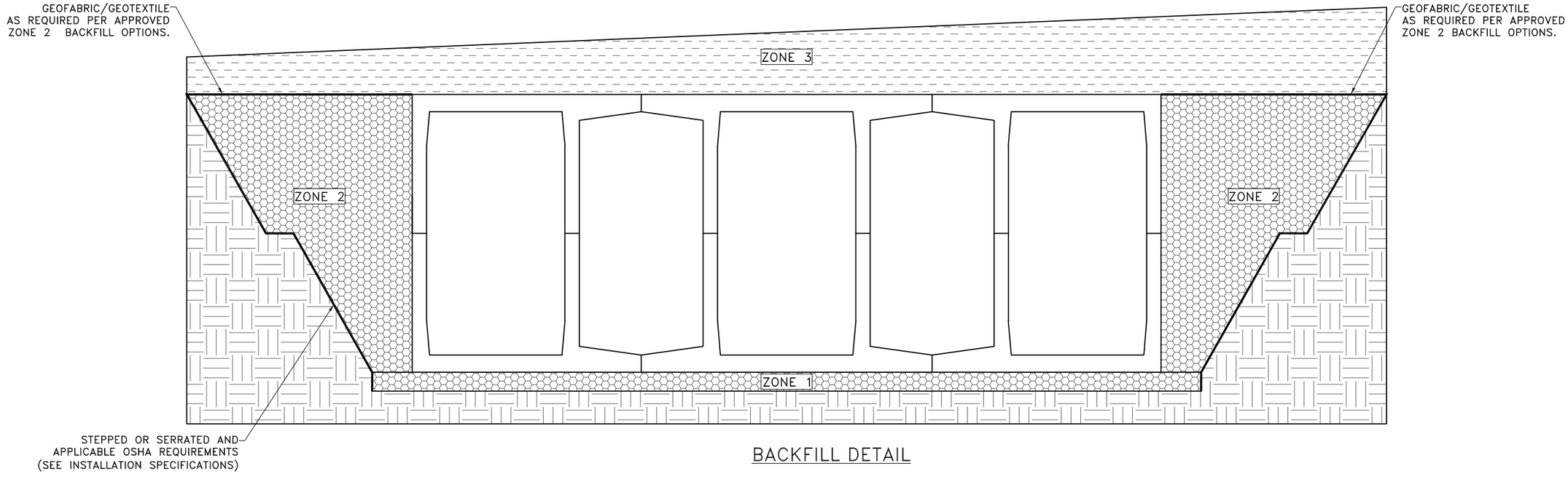
FILL DEPTH	TRACK WIDTH	MAX VEHICLE WEIGHT (KIPS)	MAX GROUND PRESSURE
12"	12"	51.8	1690 psf
	18"	56.1	1219 psf
	24"	68.1	1111 psf
	30"	76.7	1000 psf
	36"	85.0	924 psf

NOTE:
TRACK LENGTH NOT TO EXCEED 15'-4".
ONLY TWO TRACKS PER VEHICLE.

APPROVED ZONE 2 BACKFILL OPTIONS	
OPTION	REMARKS
¾" STONE AGGREGATE	THE STONE AGGREGATE SHALL CONSIST OF CLEAN AND FREE DRAINING ANGULAR MATERIAL. THE SIZE OF THIS MATERIAL SHALL HAVE 100% PASSING THE 1" SIEVE WITH 0% TO 5% PASSING THE #8 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL (ASTM SIZE #57) AS DETERMINED BY THE GEOTECHNICAL ENGINEER.
SAND	IMPORTED PURE SAND IS PERMITTED TO BE USED AS BACKFILL IF IT IS CLEAN AND FREE DRAINING. THE SAND USED FOR BACKFILLING SHALL HAVE LESS THAN 40% PASSING #40 SIEVE AND LESS THAN 5% PASSING #200 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE SAND BACKFILL.
CRUSHED CONCRETE AGGREGATE	CLEAN, FREE DRAINING CRUSHED CONCRETE AGGREGATE MATERIAL CAN BE USED AS BACKFILL FOR STORMTRAP'S MODULES. THE SIZE OF THIS MATERIAL SHALL HAVE 100% PASSING THE 1" SIEVE WITH 0% TO 5% PASSING THE #8 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL.
ROAD PACK	STONE AGGREGATE 100% PASSING THE 1-1/2" SIEVE WITH LESS THAN 12% PASSING THE #200 SIEVE (ASTM SIZE #467). GEOFABRIC AS PER GEOTECHNICAL ENGINEER RECOMMENDATION.

STORMTRAP ZONE INSTALLATION SPECIFICATIONS/PROCEDURES

1. THE FILL PLACED AROUND THE STORMTRAP MODULES MUST DEPOSITED ON BOTH SIDES AT THE SAME TIME AND TO APPROXIMATELY THE SAME ELEVATION. AT NO TIME SHALL THE FILL BEHIND ONE SIDE WALL BE MORE THAN 2'-0" HIGHER THAN THE FILL ON THE OPPOSITE SIDE. BACKFILL SHALL EITHER BE COMPACTED AND/OR VIBRATED TO ENSURE THAT BACKFILL AGGREGATE/STONE MATERIAL IS WELL SEATED AND PROPERLY INTER LOCKED. CARE SHALL BE TAKEN TO PREVENT ANY WEDGING ACTION AGAINST THE STRUCTURE, AND ALL SLOPES WITHIN THE AREA TO BE BACKFILLED MUST BE STEPPED OR SERRATED TO PREVENT WEDGING ACTION. CARE SHALL ALSO BE TAKEN AS NOT TO DISRUPT THE JOINT WRAP FROM THE JOINT DURING THE BACKFILL PROCESS. BACKFILL MUST BE FREE-DRAINING MATERIAL. SEE ZONE 2 BACKFILL CHART ON THIS PAGE FOR APPROVED BACKFILL OPTIONS. IF NATIVE EARTH IS SUSCEPTIBLE TO MIGRATION, CONFIRM WITH GEOTECHNICAL ENGINEER AND PROVIDE PROTECTION AS REQUIRED (PROVIDED BY OTHERS).
2. DURING PLACEMENT OF MATERIAL OVERTOP THE SYSTEM, AT NO TIME SHALL MACHINERY BE USED OVERTOP THAT EXCEEDS THE DESIGN LIMITATIONS OF THE SYSTEM. WHEN PLACEMENT OF MATERIAL OVERTOP, MATERIAL SHALL BE PLACED SUCH THAT THE DIRECTION OF PLACEMENT IS PARALLEL WITH THE OVERALL LONGITUDINAL DIRECTION OF THE SYSTEM WHENEVER POSSIBLE.
3. THE FILL PLACED OVERTOP THE SYSTEM SHALL BE PLACED AT A MINIMUM OF 6" LIFTS. AT NO TIME SHALL MACHINERY OR VEHICLES GREATER THAN THE DESIGN HS-20 LOADING CRITERIA TRAVEL OVERTOP THE SYSTEM WITHOUT THE MINIMUM DESIGN COVERAGE. IF TRAVEL IS NECESSARY OVERTOP THE SYSTEM PRIOR TO ACHIEVING THE MINIMUM DESIGN COVER, IT MAY BE NECESSARY TO REDUCE THE ULTIMATE LOAD/BURDEN OF THE OPERATING MACHINERY SO AS TO NOT EXCEED THE DESIGN CAPACITY OF THE SYSTEM. IN SOME CASES, IN ORDER TO ACHIEVE REQUIRED COMPACTION, HAND COMPACTION MAY BE NECESSARY IN ORDER NOT TO EXCEED THE ALLOTTED DESIGN LOADING. SEE CHART FOR TRACKED VEHICLE WIDTH AND ALLOWABLE MAXIMUM PRESSURE PER TRACK.
4. STONE AGGREGATE FOUNDATION IN ZONE 1 IS RECOMMENDED FOR LEVELING PURPOSES ONLY (OPTIONAL).



BACKFILL DETAIL

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DOUBLETRAP BACKFILL SPECIFICATIONS

SHEET NUMBER:

4.0

RECOMMENDED ACCESS OPENING SPECIFICATION

1. A TYPICAL ACCESS OPENING FOR THE STORMTRAP SYSTEM ARE 2'–0" IN DIAMETER. ACCESS OPENINGS LARGER THAN 3'–0" IN DIAMETER NEED TO BE APPROVED BY STORMTRAP. ALL OPENINGS MUST RETAIN AT LEAST 1'–0" OF CLEARANCE FROM THE END OF THE STORMTRAP MODULE UNLESS NOTED OTHERWISE. ALL ACCESS OPENINGS TO BE LOCATED ON INSIDE LEG UNLESS OTHERWISE SPECIFIED.
2. PLASTIC COATED STEEL STEPS PRODUCED BY M.A. INDUSTRIES PART #PS3–PFC OR APPROVED EQUAL (SEE STEP DETAIL) ARE PROVIDED INSIDE ANY MODULE WHERE DEEMED NECESSARY. THE HIGHEST STEP IN THE MODULE IS TO BE PLACED A DISTANCE OF 1'–0" FROM THE INSIDE EDGE OF THE STORMTRAP MODULES. ALL ENSUING STEPS SHALL BE PLACED AT A DISTANCE BETWEEN 10" MIN AND 14" MAX BETWEEN THEM. STEPS MAY BE MOVED OR ALTERED TO AVOID OPENINGS OR OTHER IRREGULARITIES IN THE MODULE.
3. STORMTRAP LIFTING INSERTS MAY BE RELOCATED TO AVOID INTERFERENCE WITH ACCESS OPENINGS OR THE CENTER OF GRAVITY OF THE MODULE AS NEEDED.
4. STORMTRAP ACCESS OPENINGS MAY BE RELOCATED TO AVOID INTERFERENCE WITH INLET AND/OR OUTLET PIPE OPENINGS SO PLACEMENT OF STEPS IS ATTAINABLE.
5. ACCESS OPENINGS SHOULD BE LOCATED IN ORDER TO MEET THE APPROPRIATE MUNICIPAL REQUIREMENTS. STORMTRAP RECOMMENDS AT LEAST TWO ACCESS OPENINGS PER SYSTEM FOR ACCESS AND INSPECTION.
6. USE PRECAST ADJUSTING RINGS AS NEEDED TO MEET GRADE. STORMTRAP RECOMMENDS FOR COVER OVER 2' TO USE PRECAST BARREL OR CONE SECTIONS. (PROVIDED BY OTHERS)

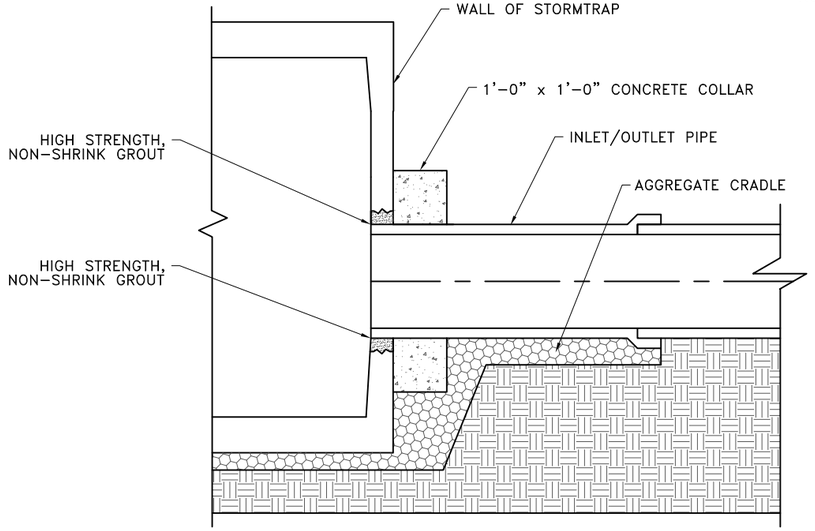
RECOMMENDED PIPE OPENING SPECIFICATION

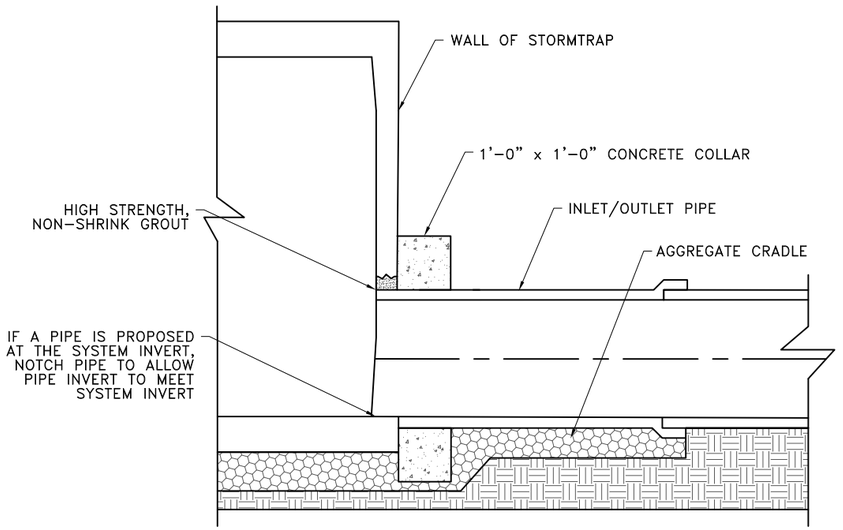
1. MINIMUM EDGE DISTANCE FOR AN OPENING ON THE OUTSIDE WALL SHALL BE NO LESS THAN 1'–0".
2. MAXIMUM OPENING SIZE TO BE DETERMINED BY THE MODULE HEIGHT. PREFERRED OPENING SIZE ø 36" OR LESS. ANY OPENING NEEDED THAT DOES NOT FIT THIS CRITERIA SHALL BE BROUGHT TO THE ATTENTION OF STORMTRAP FOR REVIEW.
3. CONNECTING PIPES SHALL BE INSTALLED WITH A 1'–0" CONCRETE COLLAR, AND AN AGGREGATE CRADLE FOR AT LEAST ONE PIPE LENGTH (SEE PIPE CONNECTION DETAIL). A STRUCTURAL GRADE CONCRETE OR HIGH STRENGTH, NON–SHRINK GROUT WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI SHALL BE USED.
4. THE ANNULAR SPACE BETWEEN THE PIPE AND THE HOLE SHALL BE FILLED WITH HIGH STRENGTH NON–SHRINK GROUT.

RECOMMENDED PIPE INSTALLATION INSTRUCTIONS

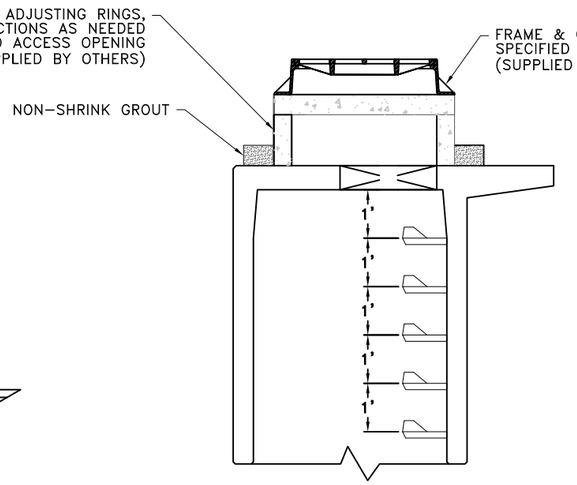
1. CLEAN AND LIGHTLY LUBRICATE ALL OF THE PIPE TO BE INSERTED INTO STORMTRAP.
2. IF PIPE IS CUT, CARE SHOULD BE TAKEN TO ALLOW NO SHARP EDGES. BEVEL AND LUBRICATE LEAD END OF PIPE.
3. ALIGN CENTER OF PIPE TO CORRECT ELEVATION AND INSERT INTO OPENING.

NOTE: ALL ANCILLARY PRODUCTS/SPECIFICATIONS RECOMMENDED AND SHOWN ON THIS SHEET ARE RECOMMENDATIONS ONLY AND SUBJECT TO CHANGE PER THE INSTALLING CONTRACTOR AND/OR PER LOCAL MUNICIPAL CODE/REQUIREMENTS.

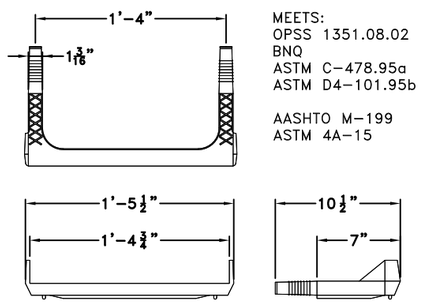




PIPE CONNECTION DETAIL



RISER / STAIR DETAIL



MEETS:
OPSS 1351.08.02
BNQ
ASTM C–478.95a
ASTM D4–101.95b

AASHTO M–199
ASTM 4A–15

STEP DETAIL

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RECOMMENDED PIPE / ACCESS OPENING SPECIFICATIONS

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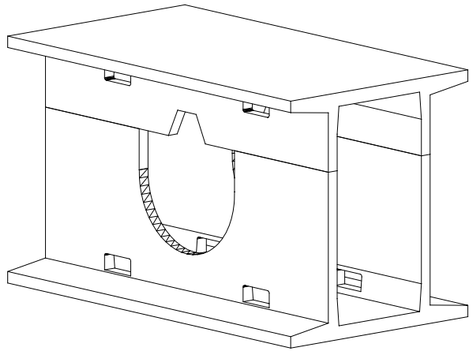
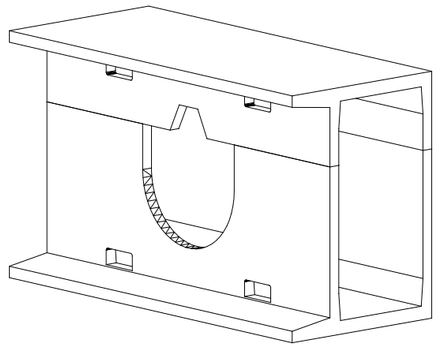
5.0



TYPE II



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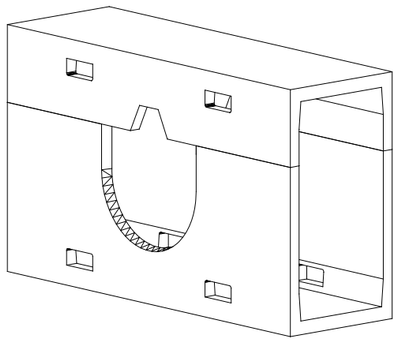
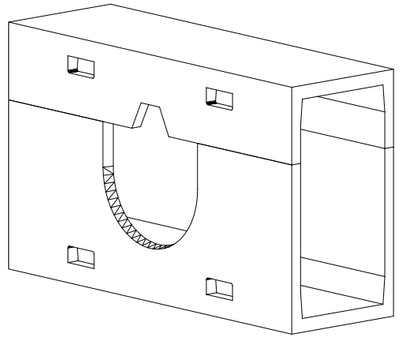
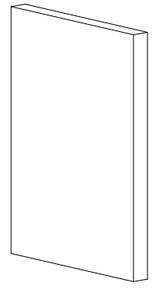


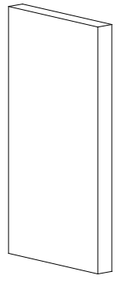
TYPE VII–2



TYPE VII–4



TYPE IV
END PANEL



TYPE VII
END PANEL

NOTES:
1. OPENING LOCATIONS AND SHAPES MAY VARY.
2. SP – INDICATES A MODULE WITH MODIFICATIONS.
3. P – INDICATES A MODULE WITH A PANEL ATTACHMENT.
4. POCKET WINDOW OPENINGS ARE OPTIONAL.

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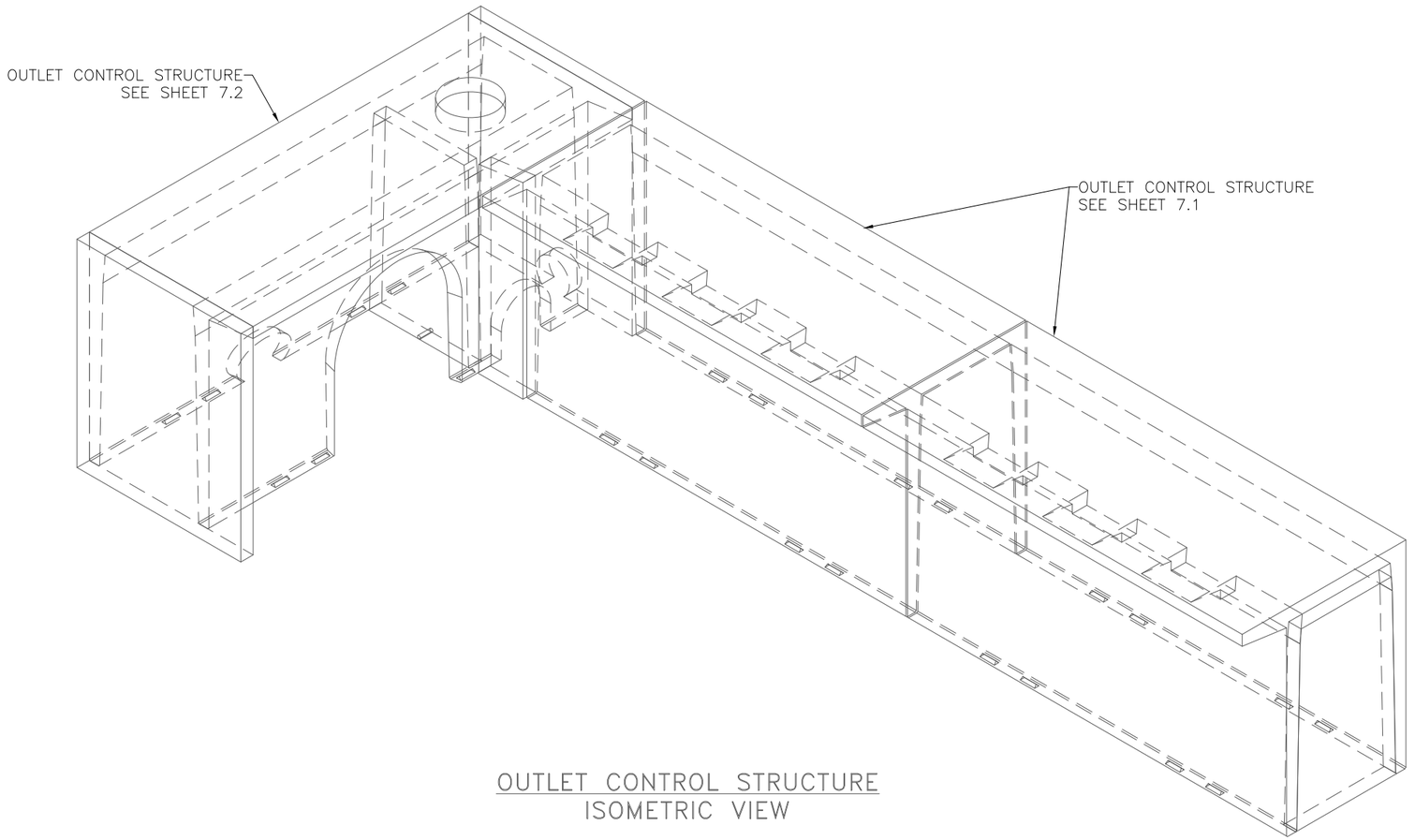
MODULE TYPES

SHEET NUMBER:

6.0



OUTLET CONTROL STRUCTURE
ISOMETRIC VIEW

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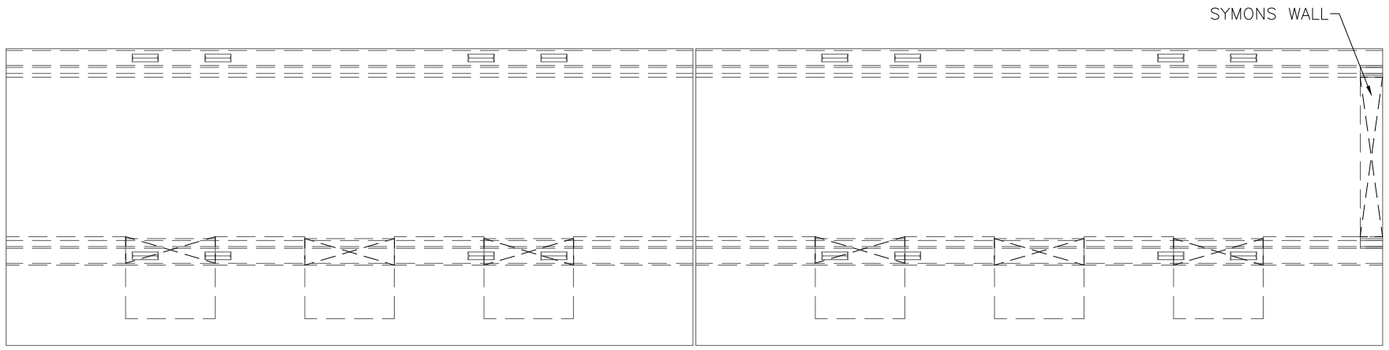
NTS

SHEET TITLE:

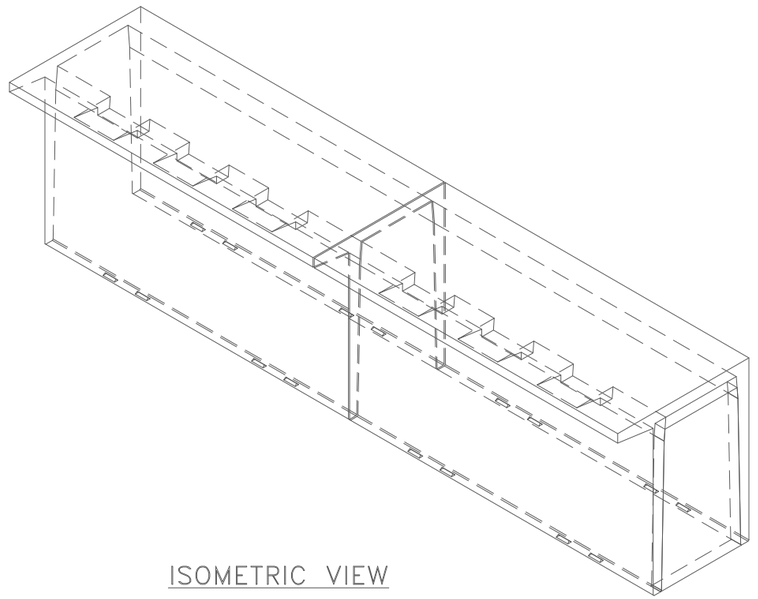
OUTLET CONTROL STRUCTURE

SHEET NUMBER:

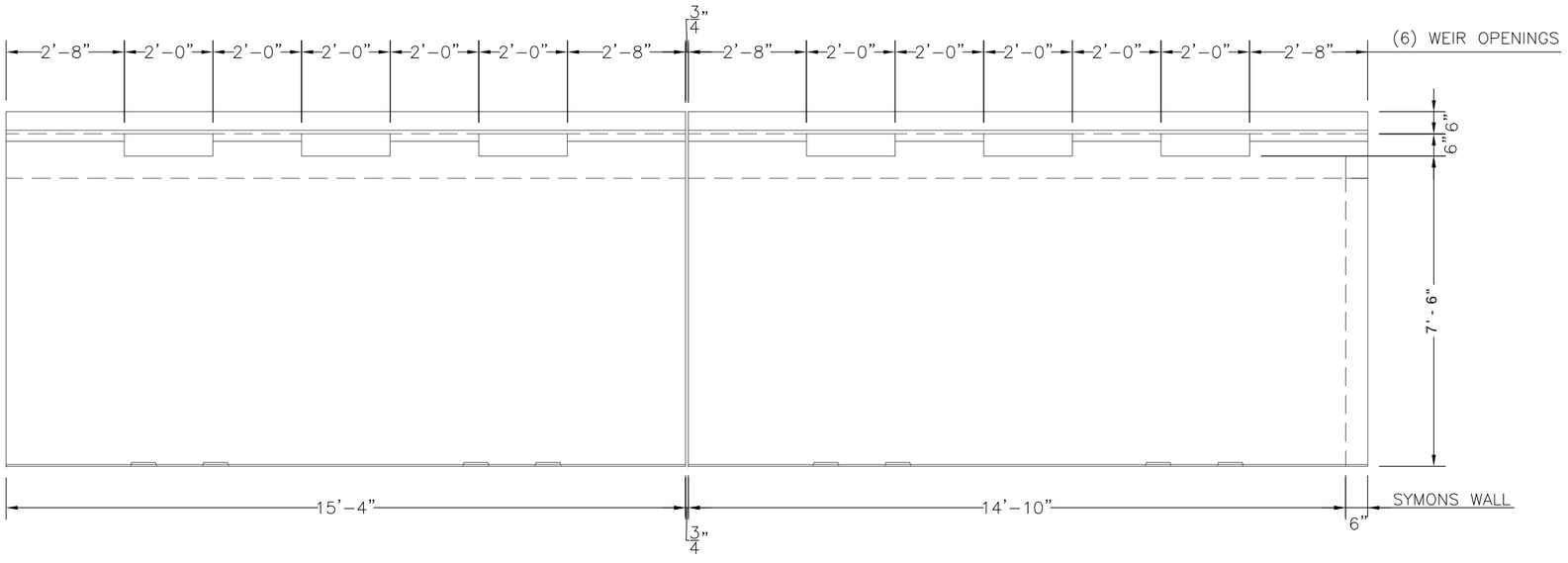
7.0



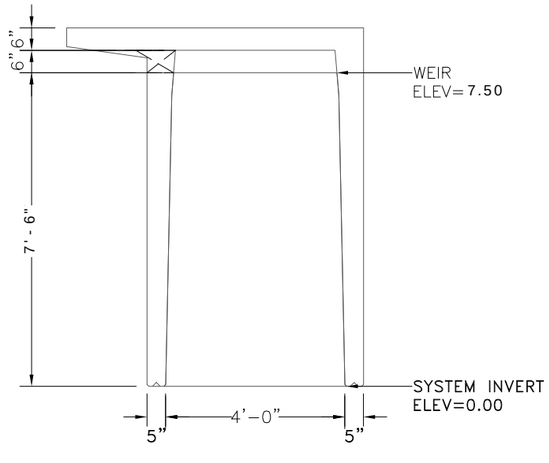
PLAN VIEW



ISOMETRIC VIEW



ELEVATION VIEW



SIDE VIEW

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OUTLET CONTROL STRUCTURE

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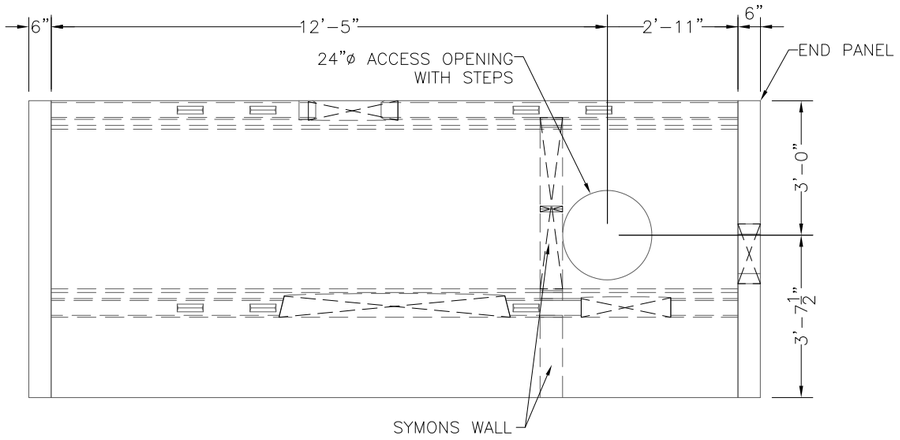
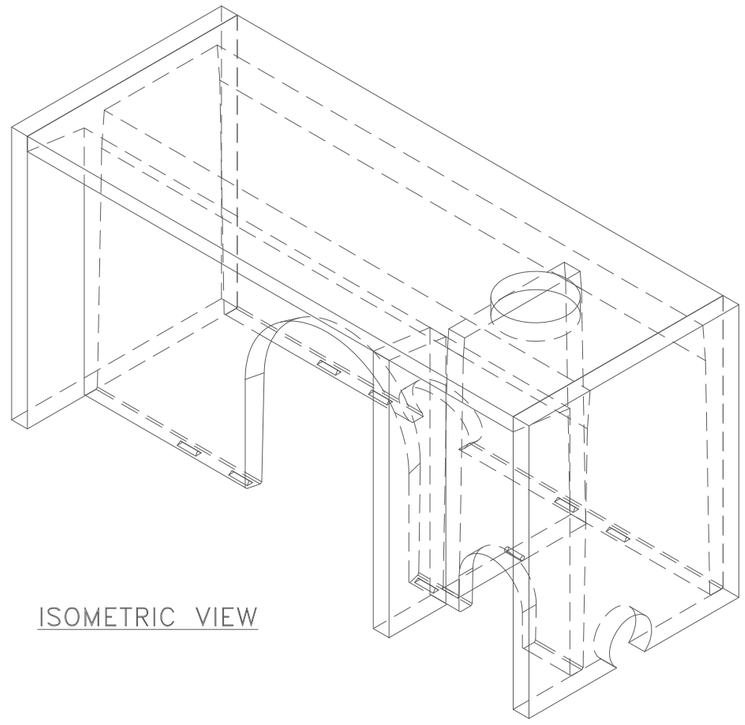
7.1



PLAN VIEW



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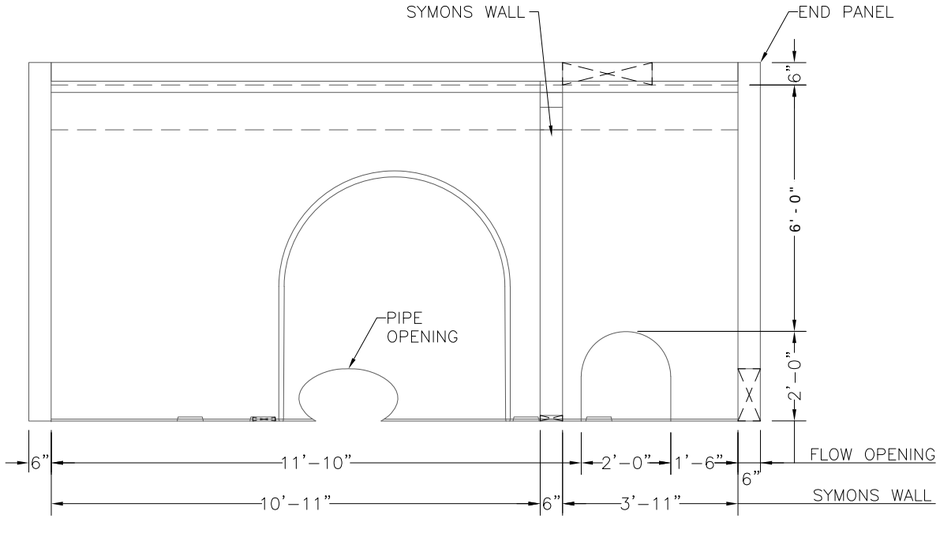
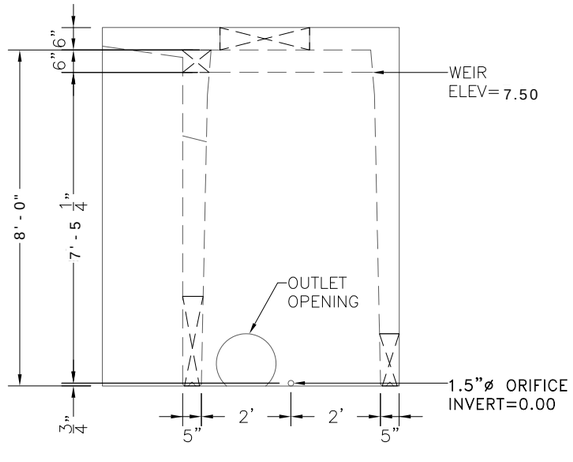


ELEVATION VIEW



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OUTLET CONTROL STRUCTURE

SHEET NUMBER:

7.2

ATTACHMENT 3 - STRUCTURAL BMP MAINTENANCE INFORMATION

This is the cover sheet for Attachment 3.

Indicate which items are included behind this cover sheet:

Attachment	Contents	Checklist
Attachment 3a	Structural BMP Maintenance Thresholds and Actions (Required)	☑ Included See Structural BMP Maintenance Information Checklist on the back of this Attachment cover sheet.
Attachment 3b	Draft Maintenance Agreement (when applicable)	□ Included □ Not Applicable

Use this checklist to ensure the required information has been included in the Structural BMP Maintenance Information Attachment:

□ **Preliminary Design / Planning / CEQA level submittal:**

Attachment 3a must identify:

□ Typical maintenance indicators and actions for proposed structural BMP(s) based on Section 7.7 of the BMP Design Manual

Attachment 3b is not required for preliminary design / planning / CEQA level submittal.

□ **Final Design level submittal:**

Attachment 3a must identify:

□ Specific maintenance indicators and actions for proposed structural BMP(s). This shall be based on Section 7.7 of the BMP Design Manual and enhanced to reflect actual proposed components of the structural BMP(s)

□ How to access the structural BMP(s) to inspect and perform maintenance

□ Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)

□ Manufacturer and part number for proprietary parts of structural BMP(s) when applicable

□ Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)

□ Recommended equipment to perform maintenance

□ When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management

Attachment 3b: For private entity operation and maintenance, Attachment 3b shall include a draft maintenance agreement in the local jurisdiction's standard format (PDP applicant to contact the City Engineer to obtain the current maintenance agreement forms).

BF-1
Biofiltration

BMP MAINTENANCE FACT SHEET
FOR
STRUCTURAL BMP BF-1 BIOFILTRATION

Biofiltration facilities are vegetated surface water systems that filter water through vegetation, and soil or engineered media prior to discharge via underdrain or overflow to the downstream conveyance system. Biofiltration facilities have limited or no infiltration. They are typically designed to provide enough hydraulic head to move flows through the underdrain connection to the storm drain system. Typical biofiltration components include:

- Inflow distribution mechanisms (e.g., perimeter flow spreader or filter strips)
- Energy dissipation mechanism for concentrated inflows (e.g., splash blocks or riprap)
- Shallow surface ponding for captured flows
- Side slope and basin bottom vegetation selected based on climate and ponding depth
- Non-floating mulch layer
- Media layer (planting mix or engineered media) capable of supporting vegetation growth
- Filter course layer consisting of aggregate to prevent the migration of fines into uncompacted native soils or the aggregate storage layer
- Aggregate storage layer with underdrain(s)
- Impermeable liner or uncompacted native soils at the bottom of the facility
- Overflow structure

Normal Expected Maintenance

Biofiltration requires routine maintenance to: remove accumulated materials such as sediment, trash or debris; maintain vegetation health; maintain infiltration capacity of the media layer; replenish mulch; and maintain integrity of side slopes, inlets, energy dissipators, and outlets. A summary table of standard inspection and maintenance indicators is provided within this Fact Sheet.

Non-Standard Maintenance or BMP Failure

If any of the following scenarios are observed, the BMP is not performing as intended to protect downstream waterways from pollution and/or erosion. Corrective maintenance, increased inspection and maintenance, BMP replacement, or a different BMP type will be required.

- The BMP is not drained between storm events. Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health, and surface ponding longer than approximately 96 hours following a storm event poses a risk of vector (mosquito) breeding. Poor drainage can result from clogging of the media layer, filter course, aggregate storage layer, underdrain, or outlet structure. The specific cause of the drainage issue must be determined and corrected.
- Sediment, trash, or debris accumulation greater than 25% of the surface ponding volume within one month. This means the load from the tributary drainage area is too high, reducing BMP function or clogging the BMP. This would require pretreatment measures within the tributary area draining to the BMP to intercept the materials. Pretreatment components, especially for sediment, will extend the life of components that are more expensive to replace such as media, filter course, and aggregate layers.
- Erosion due to concentrated storm water runoff flow that is not readily corrected by adding erosion control blankets, adding stone at flow entry points, or minor re-grading to restore proper drainage according to the original plan. If the issue is not corrected by restoring the BMP to the original plan and grade, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction.

Other Special Considerations

Biofiltration is a vegetated structural BMP. Vegetated structural BMPs that are constructed in the vicinity of, or connected to, an existing jurisdictional water or wetland could inadvertently result in creation of expanded waters or wetlands. As such, vegetated structural BMPs have the potential to come under the jurisdiction of the United States Army Corps of Engineers, SDRWQCB, California Department of Fish and Wildlife, or the United States Fish and Wildlife Service. This could result in the need for specific resource agency permits and costly mitigation to perform maintenance of the structural BMP. Along with proper placement of a structural BMP, **routine maintenance is key to preventing this scenario**.

BF-1
Biofiltration

SUMMARY OF STANDARD INSPECTION AND MAINTENANCE FOR BF-1 BIOFILTRATION		
The property owner is responsible to ensure inspection, operation and maintenance of permanent BMPs on their property unless responsibility has been formally transferred to an agency, community facilities district, homeowners association, property owners association, or other special district. Maintenance frequencies listed in this table are average/typical frequencies. Actual maintenance needs are site-specific, and maintenance may be required more frequently. Maintenance must be performed whenever needed, based on maintenance indicators presented in this table. The BMP owner is responsible for conducting regular inspections to see when maintenance is needed based on the maintenance indicators. During the first year of operation of a structural BMP, inspection is recommended at least once prior to August 31 and then monthly from September through May. Inspection during a storm event is also recommended. After the initial period of frequent inspections, the minimum inspection and maintenance frequency can be determined based on the results of the first year inspections.		
Threshold/Indicator	**Maintenance Action**	**Typical Maintenance Frequency**
Accumulation of sediment, litter, or debris	Remove and properly dispose of accumulated materials, without damage to the vegetation or compaction of the media layer.	• Inspect monthly. If the BMP is 25% full* or more in one month, increase inspection frequency to monthly plus after every 0.1-inch or larger storm event. • Remove any accumulated materials found at each inspection.
Obstructed inlet or outlet structure	Clear blockage.	• Inspect monthly and after every 0.5-inch or larger storm event. • Remove any accumulated materials found at each inspection.
Damage to structural components such as weirs, inlet or outlet structures	Repair or replace as applicable	• Inspect annually. • Maintenance when needed.
Poor vegetation establishment	Re-seed, re-plant, or re-establish vegetation per original plans.	• Inspect monthly. • Maintenance when needed.
Dead or diseased vegetation	Remove dead or diseased vegetation, re-seed, re-plant, or re-establish vegetation per original plans.	• Inspect monthly. • Maintenance when needed.
Overgrown vegetation	Mow or trim as appropriate.	• Inspect monthly. • Maintenance when needed.
2/3 of mulch has decomposed, or mulch has been removed	Remove decomposed fraction and top off with fresh mulch to a total depth of 3 inches.	• Inspect monthly. • Replenish mulch annually, or more frequently when needed based on inspection.

*"25% full" is defined as ¼ of the depth from the design bottom elevation to the crest of the outflow structure (e.g., if the height to the outflow opening is 12 inches from the bottom elevation, then the materials must be removed when there is 3 inches of accumulation – this should be marked on the outflow structure).

SUMMARY OF STANDARD INSPECTION AND MAINTENANCE FOR BF-1 BIOFILTRATION (Continued from previous page)		
Threshold/Indicator	**Maintenance Action**	**Typical Maintenance Frequency**
Erosion due to concentrated irrigation flow	Repair/re-seed/re-plant eroded areas and adjust the irrigation system.	• Inspect monthly. • Maintenance when needed.
Erosion due to concentrated storm water runoff flow	Repair/re-seed/re-plant eroded areas, and make appropriate corrective measures such as adding erosion control blankets, adding stone at flow entry points, or minor re-grading to restore proper drainage according to the original plan. If the issue is not corrected by restoring the BMP to the original plan and grade, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction.	• Inspect after every 0.5-inch or larger storm event. If erosion due to storm water flow has been observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed. If the issue is not corrected by restoring the BMP to the original plan and grade, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction.
Standing water in BMP for longer than 24 hours following a storm event Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health	Make appropriate corrective measures such as adjusting irrigation system, removing obstructions of debris or invasive vegetation, clearing underdrains, or repairing/replacing clogged or compacted soils.	• Inspect monthly and after every 0.5-inch or larger storm event. If standing water is observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed.
Presence of mosquitos/larvae For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology	If mosquitos/larvae are observed: first, immediately remove any standing water by dispersing to nearby landscaping; second, make corrective measures as applicable to restore BMP drainage to prevent standing water. If mosquitos persist following corrective measures to remove standing water, or if the BMP design does not meet the 96-hour drawdown criteria due to release rates controlled by an orifice installed on the underdrain, the [City Engineer] shall be contacted to determine a solution. A different BMP type, or a Vector Management Plan prepared with concurrence from the County of San Diego Department of Environmental Health, may be required.	• Inspect monthly and after every 0.5-inch or larger storm event. If mosquitos are observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed.
Underdrain clogged	Clear blockage.	• Inspect if standing water is observed for longer than 24-96 hours following a storm event. • Maintenance when needed.

References

American Mosquito Control Association.
http://www.mosquito.org/
California Storm Water Quality Association (CASQA). 2003. Municipal BMP Handbook.
https://www.casqa.org/resources/bmp-handbooks/municipal-bmp-handbook
County of San Diego. 2014. Low Impact Development Handbook.
http://www.sandiegocounty.gov/content/sdc/dpw/watersheds/susmp/lid.html
San Diego County Copermittees. 2016. Model BMP Design Manual, Appendix E, Fact Sheet BF-1.
http://www.projectcleanwater.org/index.php?option=com_content&view=article&id=250&Itemid=220

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BF-1
Biofiltration

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	
Property / Development Name:	Responsible Party Name and Phone Number:	
Property Address of BMP:	Responsible Party Address:	

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 1 of 5			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Accumulation of sediment, litter, or debris Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Remove and properly dispose of accumulated materials, without damage to the vegetation ☐ If sediment, litter, or debris accumulation exceeds 25% of the surface ponding volume within one month (25% full*), add a forebay or other pre-treatment measures within the tributary area draining to the BMP to intercept the materials. ☐ Other / Comments:		
Poor vegetation establishment Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Re-seed, re-plant, or re-establish vegetation per original plans ☐ Other / Comments:		

*"25% full" is defined as ¼ of the depth from the design bottom elevation to the crest of the outflow structure (e.g., if the height to the outflow opening is 12 inches from the bottom elevation, then the materials must be removed when there is 3 inches of accumulation – this should be marked on the outflow structure).

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 2 of 5			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Dead or diseased vegetation Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Remove dead or diseased vegetation, re-seed, re-plant, or re-establish vegetation per original plans ☐ Other / Comments:		
Overgrown vegetation Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Mow or trim as appropriate ☐ Other / Comments:		
2/3 of mulch has decomposed, or mulch has been removed Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Remove decomposed fraction and top off with fresh mulch to a total depth of 3 inches ☐ Other / Comments:		

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 3 of 5			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Erosion due to concentrated irrigation flow Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Repair/re-seed/re-plant eroded areas and adjust the irrigation system ☐ Other / Comments:		
Erosion due to concentrated storm water runoff flow Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Repair/re-seed/re-plant eroded areas, and make appropriate corrective measures such as adding erosion control blankets, adding stone at flow entry points, or minor re-grading to restore proper drainage according to the original plan ☐ If the issue is not corrected by restoring the BMP to the original plan and grade, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction ☐ Other / Comments:		

BF-1
Biofiltration

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 4 of 5			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Obstructed inlet or outlet structure Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Clear blockage ☐ Other / Comments:		
Underdrain clogged (inspect underdrain if standing water is observed for longer than 24-96 hours following a storm event) Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Clear blockage ☐ Other / Comments:		
Damage to structural components such as weirs, inlet or outlet structures Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Repair or replace as applicable ☐ Other / Comments:		

BF-1
Biofiltration

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 5 of 5			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Standing water in BMP for longer than 24-96 hours following a storm event* Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Make appropriate corrective measures such as adjusting irrigation system, removing obstructions of debris or invasive vegetation, clearing underdrains, or repairing/replacing clogged or compacted soils ☐ Other / Comments:		
Presence of mosquitos/larvae For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Apply corrective measures to remove standing water in BMP when standing water occurs for longer than 24-96 hours following a storm event.** ☐ Other / Comments:		

*Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health, and surface ponding longer than approximately 96 hours following a storm event poses a risk of vector (mosquito) breeding. Poor drainage can result from clogging of the media layer, filter course, aggregate storage layer, underdrain, or outlet structure. The specific cause of the drainage issue must be determined and corrected.

**If mosquitos persist following corrective measures to remove standing water, or if the BMP design does not meet the 96-hour drawdown criteria due to release rates controlled by an orifice installed on the underdrain, the [City Engineer] shall be contacted to determine a solution. A different BMP type, or a Vector Management Plan prepared with concurrence from the County of San Diego Department of Environmental Health, may be required.

StormTrap Maintenance Manual

1. Introduction

   Regular inspections are recommended to ensure that the system is functioning as designed. Please call your Authorized StormTrap Representative if you have questions in regards to the inspection and maintenance of the StormTrap system. Prior to entry into any underground storm sewer or underground detention systems, appropriate OSHA and local safety regulations and guidelines should be followed.

2. Inspection Schedules for Municipalities

   StormTrap Stormwater Management Systems are recommended for inspection whenever the upstream and downstream catch basins and stormwater pipes of the stormwater collection system are inspected or maintained. This will economize the cost of the inspection if it is done at the same time the Municipal crews are visiting the area.

3. Inspection Schedules for Private Development

   StormTrap Stormwater Management Systems, for a private development, are recommended for inspection after each major storm water event. At a minimum, until a cleaning schedule can be established, an annual inspection is recommended. If inspected on an annual basis, the inspection should be conducted before the stormwater season begins to be sure that everything is functioning properly for the upcoming storm season.

4. Inspection Process

   Inspections should be done such that at least 2-3 days has lapsed since the most recent rain event to allow for draining. Visually inspect the system at all manhole locations. Utilizing a sediment pole, measure and document the amount of silt at each manhole location. Inspect each pipe opening to ensure that the silt level or any foreign objects are not blocking the pipes. Be sure to inspect the outlet pipe(s) because this is typically the smallest pipe in the system. It is common that most of the larger materials will be collected upstream of the system in catch basins, and it is therefore important at time of inspections to check these structures for large trash or blockages.

   Remove any blockages if you can during the inspection process only if you can do so safely from the top of the system without entering into the system**. Do not go into the system under any circumstances** without proper ventilation equipment and training. Pass any information requiring action onto the appropriate maintenance personnel if you cannot remove the blockages from above during the inspection process. Be sure to describe the location of each manhole and the type of material that needs to be removed.

   The sediment level of the system should also be measured and recorded during the inspection process. Recording the sediment level at each manhole is very important in order get a history of sediment that can be graphed over time (i.e. years) in order to estimate when the system will

need to be maintained next. It is also important to keep these records to verify that the inspection process was actually performed if anyone asks for your records in the future.

The sediment level in the underground detention system can be determined from the outside of the system by opening up all the manholes and using a sediment pole to measure the amount of sediment at each location. Force the stick to the bottom of the system and then remove it and measure the amount of sediment at that location. Again, do not go into the system under any circumstances without proper ventilation equipment and training.

5. When to Clean the System

Any blockages should be safely removed as soon as practical so that the Stormwater detention system will fill and drain properly before the next stormwater event.

The Dry Detention System should be completely cleaned whenever the sediment occupies more than 10% to 15% of the originally designed system's volume. The Wet Detention System should be cleaned when the sediment occupies more than 30% or 1/3rd of the originally designed system's volume. NOTE: Check with your municipality in regards to cleaning criteria, as the allowable sediment before cleaning may be more or less then described above.

6. How to Clean the StormTrap

The system should be completely cleaned back to 100% of the originally designed storage volume whenever the above sediment levels have been reached. Be sure to wait at least 3 days after a stormwater event to be sure that the system is completely drained (if it is a Dry Detention System), and all of the sediments have settled to the bottom of the system (if it is a Wet Detention System).

Do not enter the System unless you are properly trained, equipped, and qualified to enter a confined space as identified by local occupational safety and health regulations.

There are many maintenance companies that are in business to help you clean your underground stormwater detention systems and water quality units. Please call your StormTrap representative for referrals in your area.

A. Dry Detention System Cleaning

Maintenance is typically performed using a vacuum truck. Sediment should be flushed towards a vacuum hose for thorough removal. For a Dry Detention System, remove the manhole cover at the top of the system and lower a vacuum hose into one of the rows of the StormTrap system. Open up the manhole at the opposite end of the StormTrap and use sewer jetting equipment to force water in the same row from one end of the StormTrap row to the opposite side. The rows of the StormTrap are completely open in one contiguous channel from one end to the other for easy cleaning.

Place the vacuum hose and the sewer jetting equipment in the next row and repeat the process until all of the rows have been cleaned.

When finished, replace all covers that were removed and dispose of the collected material properly.

B. Wet Detention System Cleaning

If the system was designed to maintain a permanent pool of water, floatables and any oil should be removed in a separate procedure prior to the removal of all sediment.

The floatable trash is removed first by using a bucket strainer to capture and remove any floating debris.

The floatable oils are then removed off the top of the water by using the vacuum truck to suck off any floatable fluids and liquids.

The next step is to use the vacuum truck to gently remove the clarified water above the sediment layer.

The final step is to clean the sediment for each row as described above in the paragraph "A. Dry Detention System Cleaning". For smaller systems, the vacuum truck can remove all of the sediment in the basin without using the sewer jetting equipment because of the smaller space.

8. Proof of these inspections is the responsibility of the property owner. All inspection reports and data should be kept on site or at a location where they will be accessible for years in the future. Some municipalities require these inspection and cleaning reports to be forwarded to the proper governmental permitting agency on an annual basis.

Refer to your local and national regulations for any additional maintenance requirements and schedules not contained herein. Inspections should be a part of your standard operating procedure.

SAMPLE INSPECTION AND MAINTENANCE LOG

Date	Depth of Sediment	Accumulated Trash	Maintenance Performed	Maintenance Personnel	Comments
	3”	None	Sediment Removal/Vac	B. Johnson	

ATTACHMENT 4 - COPY OF PLAN SHEETS SHOWING PERMANENT STORM WATER BMPS

This is the cover sheet for Attachment 4.

Use this checklist to ensure the required information has been included on the plans:

The plans must identify:

- □ Structural BMP(s) with ID numbers matching Form I-6 Summary of PDP Structural BMPs
- □ The grading and drainage design shown on the plans must be consistent with the delineation of DMAs shown on the DMA exhibit
- □ Details and specifications for construction of structural BMP(s)
- □ Signage indicating the location and boundary of structural BMP(s) as required by the [City Engineer]
- □ How to access the structural BMP(s) to inspect and perform maintenance
- □ Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
- □ Manufacturer and part number for proprietary parts of structural BMP(s) when applicable
- □ Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)
- □ Recommended equipment to perform maintenance
- □ When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management
- □ Include landscaping plan sheets showing vegetation requirements for vegetated structural BMP(s)
- □ All BMPs must be fully dimensioned on the plans
- □ When proprietary BMPs are used, site-specific cross section with outflow, inflow, and model number shall be provided. Photocopies of general brochures are not acceptable.

MULTI-003780-2020/ BADJ-003787-2020/ CDP-003788-2020/ DR-003786-2020 FENWAY N. HWY 101

LEGEND

SUBJECT PROPERTY / SUBDIVISION BOUNDARY	
RIGHT-OF-WAY / PROPOSED FUTURE LOT LINE	
CENTERLINE OF ROAD	
EXISTING EASEMENTS	
PROPOSED EASEMENTS	
ADJACENT PROPERTY LINE	

EXISTING EASEMENT INFORMATION

1. AN EASEMENT GRANTED TO THE STATE OF CALIFORNIA FOR STATE HIGHWAY 80 RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY IN BOOK 751, PAGE 375, AND IN BOOK 751, PAGE 377, AND BOOK 1073, PAGE 395, AS SHOWN HEREON.
2. AN EASEMENT GRANTED TO THE STATE OF CALIFORNIA FOR STATE HIGHWAY PURPOSES, RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY AS BOOK 297, PAGE 324 OF OFFICIAL RECORDS, DATED JUNE 11, 1934, AS SHOWN HEREON.
3. AN EASEMENT GRANTED TO SAN DIEGO GAS AND ELECTRIC COMPANY FOR PUBLIC UTILITIES, INGRESS AND EGRESS, RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY AS BOOK 1867, PAGE 333, OF OFFICIAL RECORDS, DATED MAY 15, 1945, AS SHOWN HEREON.
4. AN EASEMENT FOR PUBLIC UTILITIES, RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY AS BOOK 1935, PAGE 418, OF OFFICIAL RECORDS, DATED OCTOBER 4, 1945. THE EXACT LOCATION OF SAID EASEMENT IS NOT DISCLOSED OF RECORD AND IS NOT SHOWN HEREON.
5. AN EASEMENT GRANTED TO SAN DIEGO GAS AND ELECTRIC COMPANY FOR PUBLIC UTILITIES, INGRESS AND EGRESS, RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY AS BOOK 2198, PAGE 227, DATED FEBRUARY 4, 1946, OF OFFICIAL RECORDS.
6. AN EASEMENT GRANTED TO CITY OF ENCINITAS FOR PUBLIC STREET RGHT-OF-WAY, RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY AS DOCUMENT NO. 2019-00104396, DATED JANUARY 10, 2019, OF OFFICIAL RECORDS.
7. AN EASEMENT GRANTED TO CITY OF ENCINITAS FOR PUBLIC STREET RGHT-OF-WAY, RECORDED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY AS DOCUMENT NO. 2019-0010423, DATED JANUARY 10, 2019, OF OFFICIAL RECORDS.

PROPOSED EASEMENT INFORMATION

1. PROPOSED EMERGENCY ACCESS EASEMENT FOR PRIVATE ROADS TO THE CITY OF ENCINITAS
2. PROPOSED SEWER EASEMENT TO THE ENCINITAS SANITARY DISTRICT
3. PROPOSED WATER EASEMENT TO THE SAN DIEGUITO WATER DISTRICT
4. PROPOSED PRIVATE DRAINAGE EASEMENT

UTILITIES

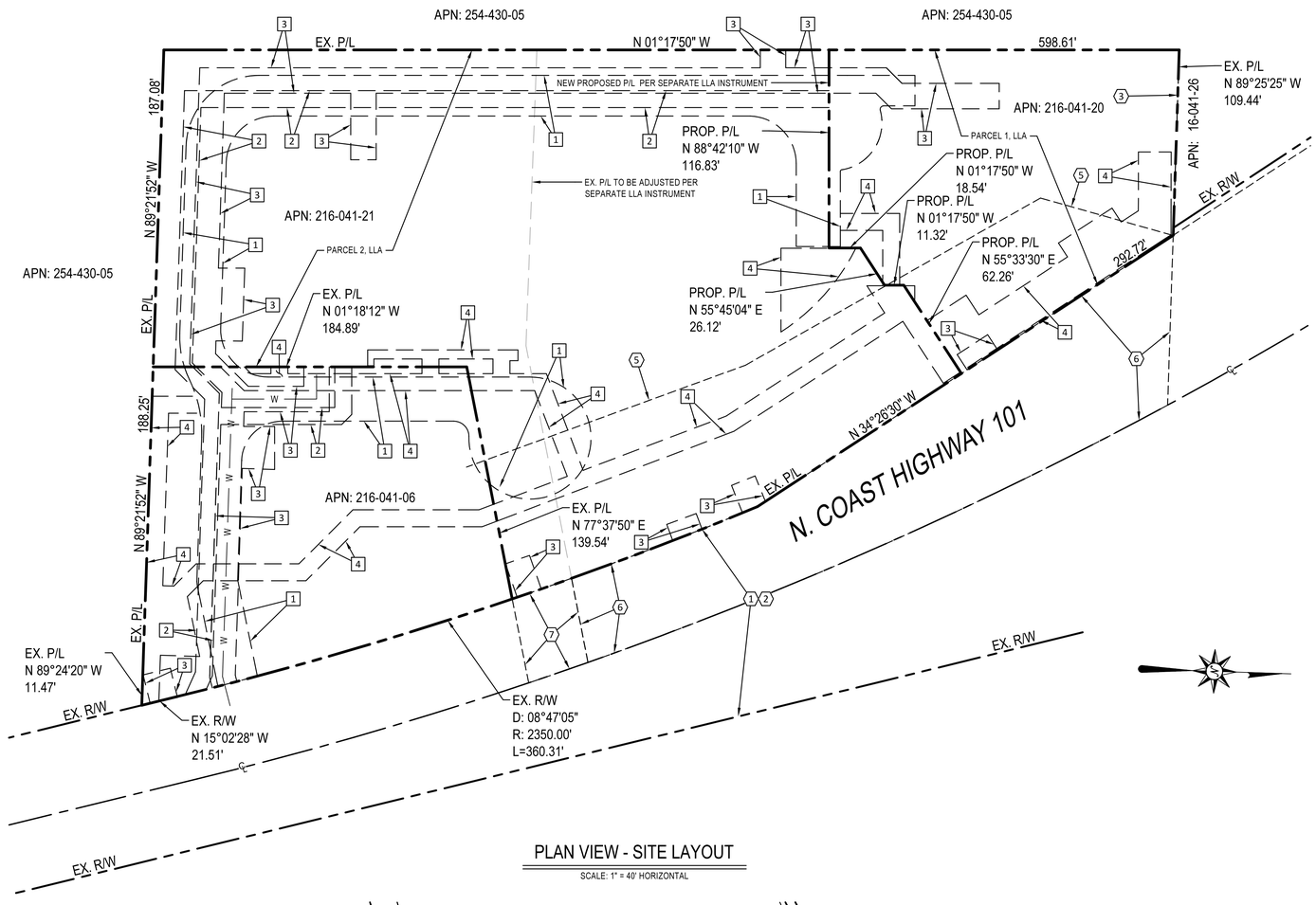
WATER	SAN DIEGUITO WATER DISTRICT
FIRE	ENCINITAS FIRE PROTECTION DISTRICT
SEWER	LEUCADIA WASTEWATER DISTRICT
ELEMENTARY SCHOOL	ENCINITAS UNION SCHOOL DISTRICT
HIGH SCHOOL	SAN DIEGUITO UNION HIGH SCHOOL DISTRICT

AREA CALCULATIONS

TOTAL SITE AREA:	165,107 SF (3.790 AC)
AREA DISTURBED BY PROJECT:	166,988 SF (3.834 AC)
EXISTING IMPERVIOUS AREA:	76,820 SF (1.764 AC)
PROPOSED IMPERVIOUS AREA:	143,659 SF (3.298 AC)
INCREASE IMPERVIOUS AREA:	66,839 SF (1.534 AC)

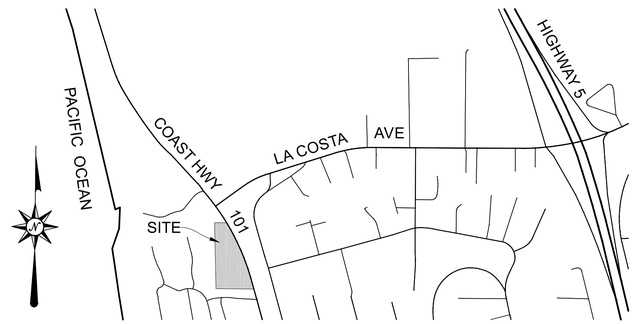
ABBREVIATIONS

AC	ASPHALT CONCRETE	MH	MANHOLE
BFD	BACKFLOW DEVICE	PA	PLANTER AREA
BS	BOTTOM OF STAIRS	P/L	PROPERTY LINE
BW	BOTTOM OF WALL	PP	POWER POLE
CB	CATCH BASIN	PROP	PROPOSED
CF	CURB FACE	PVC	POLYVINYL CHLORIIDE
CO	CLEANOUT	R/W	RIGHT-OF-WAY
CONC	CONCRETE	SCO	SEWER CLEANOUT
EG	EDGE OF GUTTER	SDCO	STORM DRAIN CLEANOUT
ELEC	ELECTRICAL	SL	STREET LIGHT
ELVT	ELEVATOR	SMH	SEWER MANHOLE
EX	EXISTING	SDMH	STORM DRAIN MANHOLE
FF	FINISH FLOOR	TC	TOP OF CURB
FG	FINISHED GRADE	TG	TOP OF GRATE
FL	FLOW LINE	TS	TOP OF STAIRS
FM	FORCE MAIN	TW	TOP OF WALL
FS	FINISHED SURFACE	TYP	TYPICAL
GA	GUY ANCHOR	WAR	WATER AIR RELEASE
GB	GRADE BREAK	WM	WATER METER
GF	GARAGE FLOOR	WV	WATER VALVE
GP	GUY POLE		
GV	GAS VALVE		
INV	INVERT ELEVATION		



PLAN VIEW - SITE LAYOUT

SCALE: 1" = 40' HORIZONTAL



VICINITY MAP

NOT TO SCALE

OWNER INFORMATION

WE HEREBY CERTIFY THAT WE ARE THE RECORDED OWNERS OF THE PROPERTY SHOWN ON THE ATTACHED COASTAL DEVELOPMENT PERMIT AND THAT SAID APPLICATION SHOWS THE ENTIRE CONTIGUOUS OWNERSHIP. I UNDERSTAND THAT PROPERTY IS CONSIDERED CONTIGUOUS EVEN IF IT IS SEPARATED BY ROADS, STREETS, UTILITY EASEMENTS, OR RAILROAD RIGHTS OF WAY.

OWNER: _____

LARRY JACKEL FOR:
FENWAY CAPITAL ADVISORS
674 VIA DE LA VALLE, #310
SOLANA BEACH, CA 92075

ABBREVIATED LEGAL DESCRIPTION

APN 216-041-20 & 216-041-21: PORTION OF THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 12 SOUTH, RANGE 4 WEST, SAN BERNARDINO MERIDIAN IN THE CITY OF ENCINITAS, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA AS SHOWN AND DESIGNATED ON GRANT DEED DOCUMENT NO. 2018-0286076 FILED ON JULY 13, 2018, (PARCELS "A" AND "B" ONLY).

216-041-06: PORTION OF SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 12 SOUTH, RANGE 4 WEST, SAN BERNARDINO MERIDIAN, IN THE CITY OF ENCINITAS, COUNTY OF SAND DIEGO, STATE OF CALIFORNIA AS SHOWN AND DESIGNATED ON QUITCLAIM DEED NO. 1999-0646957.

SITE ADDRESS

LEUCADIA 101
1900, 1950 & 2100 NORTH COAST HWY 101
ENCINITAS, CA 92024
APN: 216-041-06, -20 & -21

ACCESS

VEHICULAR ACCESS FROM COAST HIGHWAY 101

TOPOGRAPHY

TOPOGRAPHY OBTAINED FROM ACCULINE SURVEY, PREPARED ON JULY 06, 2019
PREPARED BY: RUDY P. PACHECO, L.S. 5717
ACCULINE SURVEY, INC.
1919 GRAND AVE, SUITE 1G, SAN DIEGO, CA 92109

ALL TOPOGRAPHIC INFORMATION SHOWN HEREON WAS PROVIDED BY OTHERS AND IS ASSUMED TO BE COMPLETE AND ACCURATE. PLSA HAS NOT PROVIDED ANY VERIFICATION OF EXISTING SITE TOPOGRAPHY.

BENCHMARK

ENC-25 2.5" CITY OF ENCINITAS BRASS DISK IN WELL MONUMENT IN THE MIDDLE OF THE INTERSECTION OF SOUTH PORTAL AND LA MESA AVENUE AS SHOWNO N CITY OF ENCINITAS CONTROL RECORD OF SURVEY 18416
ELEVATION = 60.60
DATUM = NAVD 88

BASIS OF BEARINGS

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA COORDINATE SYSTEM, NAD 83 (CCS83) EPOCH 1991.35 ZONE 6, AS DETERMINED LOCALLY BY A LINE BETWEEN FIRST ORDER CONTROL STATIONS "CLSB-021" AND "ENC-25" BEING A GRID BEARING OF N09°56'55" W AS DERIVED FROM GEODETIC VALUES SHOWN ON RECORD OF SURVEY 18416, CITY OF ENCINITAS SURVEY CONTROL, FILED ON SEPTEMBER 3, 2004 AS FILE NUMBER 2004-843575 IN THE OFFICE OF THE COUNTY RECORDERD OF SAN DIEGO COUNTY

ZONING INFORMATION

GENERAL PLAN LAND USE:	PARCEL 1/2: VISITOR SERV. COMM. PARCEL 3: GENERAL COMMERCIAL	PRESENT USE:	PARCEL 1 & 2: COMMERCIAL/ RETAIL PARCEL 3: VACANT
PRESENT ZONING REQUIREMENTS:	PARCEL 1 & 2: N-LVSC / R-30 PARCEL 3: N-CRM-1	PROPOSED USE:	PARCEL 1: HOTEL PARCEL 2: MIXED USE PARCEL 3: MIXED USE
BUILDING HEIGHT:	35' TO 39' FOR R-30 OL 30' FOR N-CRM-1	TOTAL UNITS:	30 FOR HOTEL ON PARCEL 1 94 FOR RESID. ON PARCEL 2 10 FOR RESIDENTIAL ON N-CRM-1
MAXIMUM LOT COVERAGE (PER ZONE):	65% FOR R-30 OL 90% FOR N-CRM-1		

SETBACKS

	PARCEL 1	PARCEL 2	PARCEL 3
FRONT*	10' REQ'D/ 0' PROP.*	10' REQ'D/ 0' PROP.*	0' REQ'D/ 0' PROP.
SIDE*	10' REQ'D/ 10' PROP.	10' REQ'D/ 10' PROP.	0' REQ'D/ 0' PROP.
SIDE (ADJACENT TO RESIDENTIAL)	10' REQ'D/ 10' PROP.	10' REQ'D/ 10' PROP.	10' REQ'D/ 10' PROP.
REAR	10' REQ'D/ 10' PROP.	10' REQ'D/ 10' PROP.	0' REQ'D/ 0' PROP.
REAR (ADJ. TO RESIDENTIAL)	10' REQ'D/ 10' PROP.	10' REQ'D/ 10' PROP.	10' REQ'D/ 10' PROP.
REAR (ADJ. TO RESID.) 3 STORIES OR MORE	30' REQ'D/ 30' PROP.	30' REQ'D/ 30' PROP.	N/A/ N/A
STREET SIDE	10' REQ'D/ N/A	10' REQ'D/ N/A	0'/ N/A

*MAY BE REDUCED WITH DESIGN REVIEW

EARTHWORK / PROJECT GRADING

CUT:	50,700 CY	MAX CUT HEIGHT:	31.5 FT
FILL:	2,300 CY	MAX FILL HEIGHT:	18.4 FT
EXPORT:	48,400 CY		
REMEDIAL:	0 CY		

*ESTIMATE DOES NOT INCLUDE STRIPPINGS OR UTILITY TRENCH VOLUMES, IF REQUIRED BY SITE CONDITIONS

CONTRACTOR SHALL SATISFY SELF THAT ESTIMATES ARE CORRECT PRIOR TO COMMENCEMENT OF WORK.

EARTHWORK QUANTITIES ARE ESTIMATED FOR PERMIT PURPOSES ONLY. (CALCULATED ON A THEORETICAL BASIS. ACTUAL QUANTITIES MAY VARY DUE TO SHRINKAGE OR SWELL FACTORS).

DEPTH & QUANTITY OF REMEDIAL GRADING IS SUBJECT TO FIELD VERIFICATION BY PROJECT SOILS ENGINEER IN FIELD DURING EXCAVATION.

ENGINEER OF WORK

WILLIAM J. SUITER, PE #68964 DATE

REGISTERED PROFESSIONAL ENGINEER — WILLIAM J. SUITER — No. RCE 68964 — EXP. 12-31-21 — Civil — STATE OF CALIFORNIA

SHEET INDEX

TITLE SHEET
FENWAY N. HWY 101
CITY OF ENCINITAS

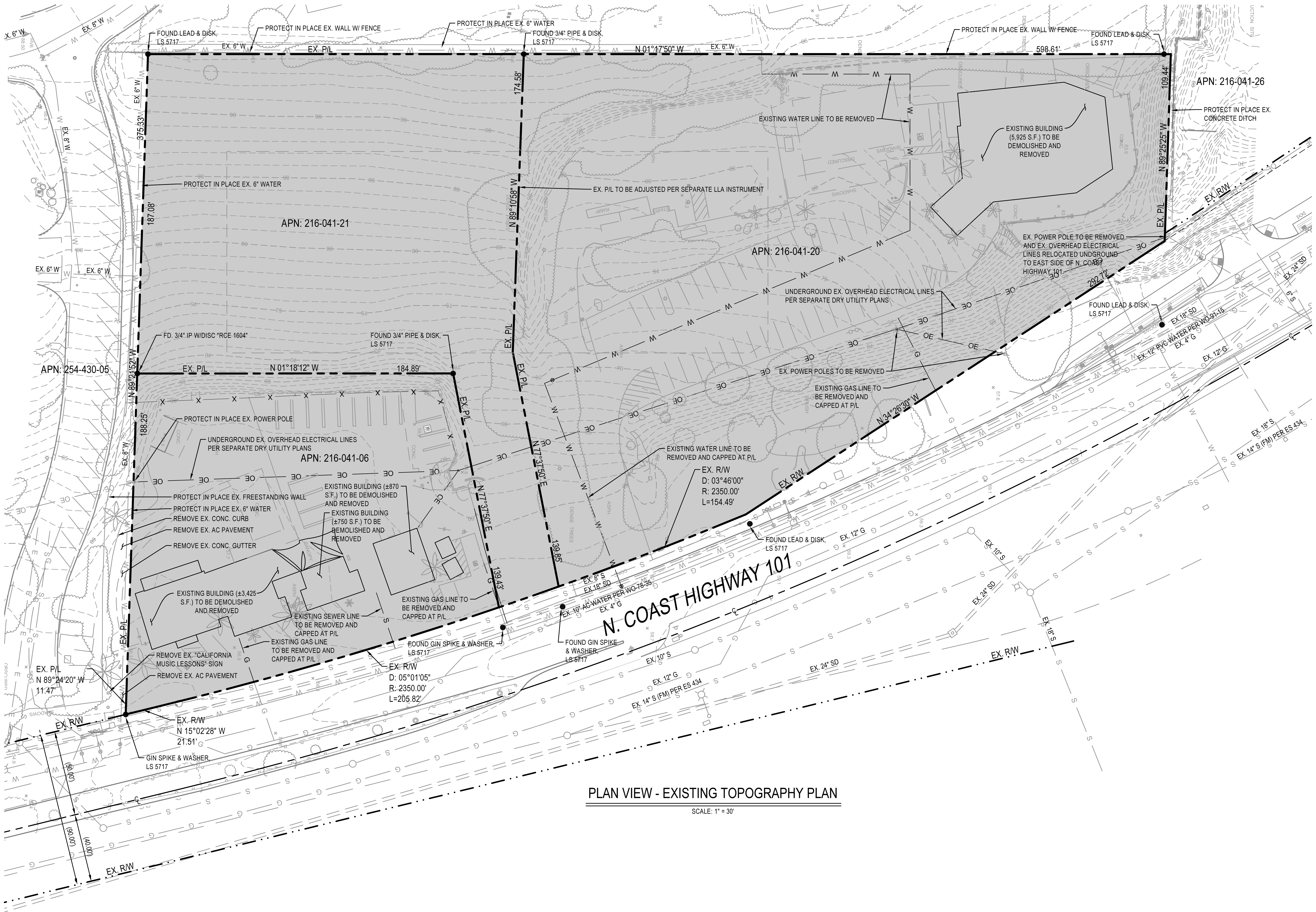
DATE PREPARED: 12/21/20
PREPARED BY: PAULO AYALA

PASCO LARET SUITER & ASSOCIATES
San Diego | Solana Beach | Orange County
Phone 949.661.6695 | www.plsaengineering.com

SAVE DATE: ---- ~ PLOT DATE: 07/21/21 ~ FILE NAME: J:\ACTIVE JOBS\3161 ENCINITAS LEUCADIA 101\CIVIL\DRAWING\DISCRETIONARY PLANS\3161-PRLIM-01-TITL.dwg

EXISTING TOPOGRAPHY PLAN

FENWAY N. HWY 101



PLAN VIEW - EXISTING TOPOGRAPHY PLAN

SCALE: 1" = 30'

LEGEND

PROPERTY BOUNDARY	
CENTERLINE OF ROAD	
ADJACENT PROPERTY LINE / RIGHT-OF-WAY	
EXISTING CONTOUR LINE	64
EXISTING WATER MAIN (SIZE PER PLAN)	W
EXISTING SEWER MAIN (SIZE PER PLAN)	S
EXISTING STORM DRAIN (SIZE PER PLAN)	SD
EXISTING GAS MAIN	G
EXISTING TELECOM CONDUIT	T
LIMITS OF ON-SITE REMOVAL	

SITE NOTES

1. EXISTING SURVEY MONUMENTS TO BE PROTECTED IN PLNCE. IF MONUMENT IS DISTURBED OR DESTROYED, IT SHALL BE REPLACED BY A LICENSED LAND SURVEYOR AND A CORNER RECORD OF SURVEY SHALL BE FILED WITH THE COUNTY.
2. ALL EXISTING STRUCTURES AND WALLS WITHIN THE PROPOSED DISTURBED AREA TO BE DEMOLISHED UNLESS OTHERWISE NOTED.
3. ALL EXISTING TREES WITHIN THE PROPOSED DISTURBED AREA TO BE REMOVED AND THE AREA CLEARED / GRUBBED UNLESS OTHERWISE NOTED.
4. ALL UTILITIES SHOWN HEREON PER BEST AVAILABLE RECORDS. CONTRACTOR SHALL VERIFY EXACT HORIZONTAL AND VERTICAL LOCATION PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY ENGINEER OF RECORD OF DISCREPANCIES UPON DISCOVERY.

ABBREVIATIONS

AC	ASPHALT CONCRETE	P/L	PROPERTY LINE
BFD	BACKFLOW DEVICE	PP	POWER POLE
BS	BOTTOM OF STAIRS	PROP	PROPOSED
BW	BOTTOM OF WALL	PVC	POLYVINYL CHLORIIDE
CB	CATCH BASIN	R/W	RIGHT-OF-WAY
CF	CURB FACE	SCO	SEWER CLEANOUT
CO	CLEANOUT	SDCO	STORM DRAIN CLEANOUT
CONC	CONCRETE	SL	STREET LIGHT
ELEC	ELECTRICAL	SMH	SEWER MANHOLE
EX	EXISTING	SDMH	STORM DRAIN MANHOLE
FF	FINISH FLOOR	TC	TOP OF CURB
FG	FINISHED GRADE	TG	TOP OF GRATE
FL	FLOW LINE	TS	TOP OF STAIRS
FS	FINISHED SURFACE	TW	TOP OF WALL
GA	GUY ANCHOR	TYP	TYPICAL
GB	GRADE BREAK	WM	WATER METER
GF	GARAGE FLOOR	WV	WATER VALVE
GP	GUY POLE		
GV	GAS VALVE		
INV	INVERT ELEVATION		
MH	MANHOLE		
PA	PLANTER AREA		

EASEMENT NOTES

**SEE SHEET 1 FOR ALL EXISTING EASEMENTS PLOTTED AND LABELED ONSITE

SCALE: 1" = 30'

30 15 0 30 60 90

EXISTING TOPOGRAPHY PLAN
FENWAY N. HWY 101
CITY OF ENCINITAS

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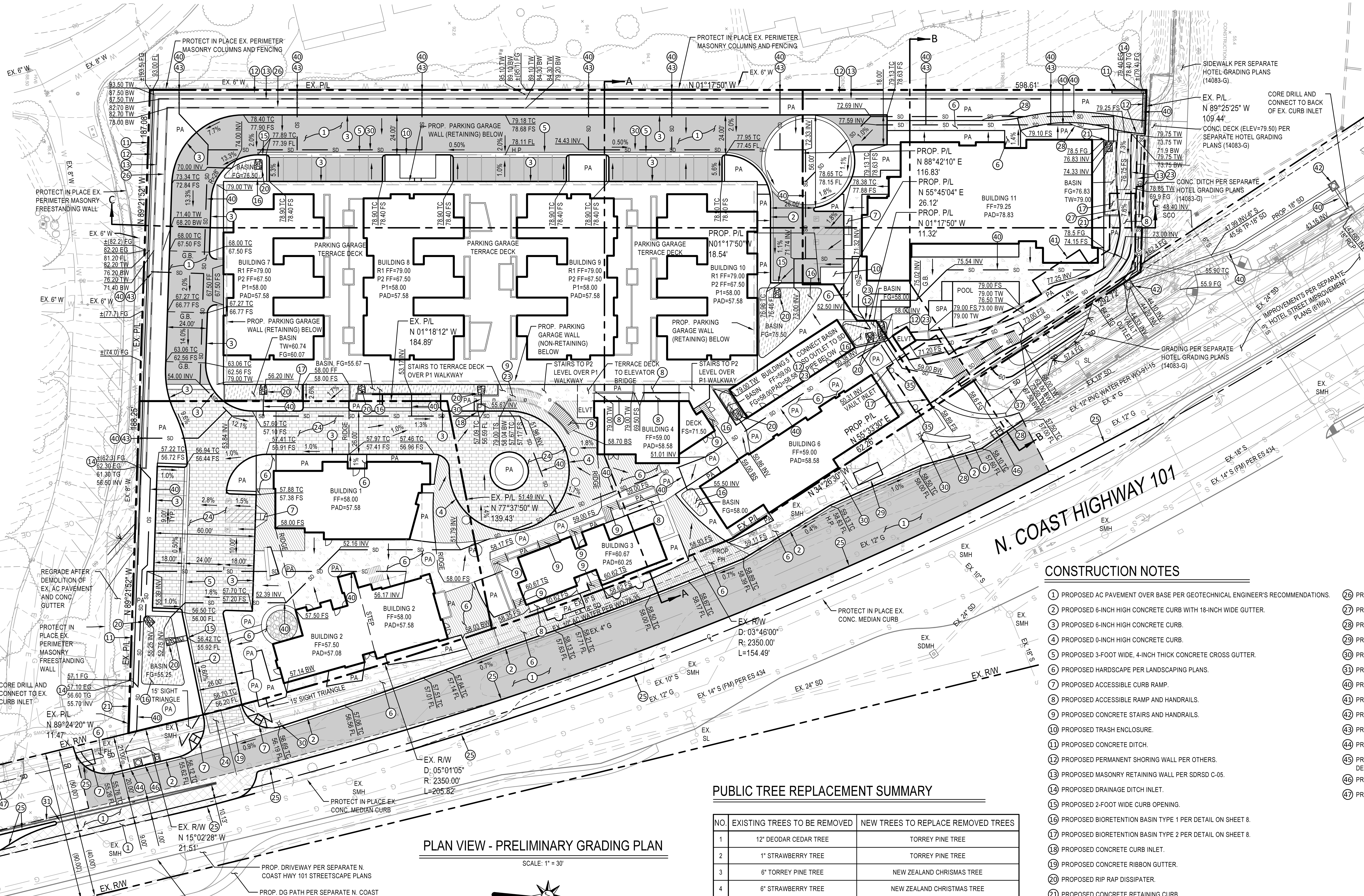
PRELIMINARY GRADING PLAN

FENWAY N. HWY 101



PLAN VIEW - PRELIMINARY GRADING PLAN

SCALE: 1" = 30'

SCALE: 1" = 30'
30 15 0 30 60 90

LEGEND

PROPERTY BOUNDARY	
CENTERLINE OF ROAD	
ADJACENT PROPERTY LINE / RIGHT-OF-WAY	
EXISTING CONTOUR LINE	64
PROPOSED CONTOUR LINE	64
PROPOSED FLOWLINE	
PROPOSED DIRECTION OF FLOW	
PROPOSED 6" PCC CURB & GUTTER PER SDRSD G-2	
PROPOSED AC PAVEMENT	
PROPOSED AC PAVEMENT TO REPLACE EX. MEDIAN	
PROPOSED CONCRETE PAVEMENT	
PROPOSED BMP BIOFILTRATION BASIN (TYPE 1 OR TYPE 2) PLANTER PER DETAILS ON SHEET 7	
PROPOSED BOARDWALK PAVING (LINEAR PAVERS OR MANUFACTURED WOOD DECKING)	
PROPOSED CONCRETE PAVERS	
PROPOSED UNDERGROUND PARKING GARAGE WALL	
PROPOSED MASONRY RETAINING WALL	
PROPOSED STORM DRAIN	SD
EXISTING WATER MAIN (SIZE PER PLAN)	W
EXISTING SEWER MAIN (SIZE PER PLAN)	S
EXISTING STORM DRAIN (SIZE PER PLAN)	SD
EXISTING GAS MAIN (SIZE PER PLAN)	G
EXISTING TELECOM CONDUIT	T

SITE NOTES

1. EXISTING SURVEY MONUMENTS TO BE PROTECTED IN PLACE. IF MONUMENT IS DISTURBED OR DESTROYED, IT SHALL BE REPLACED BY A LICENSED LAND SURVEYOR AND A CORNER RECORD OF SURVEY SHALL BE FILED WITH THE COUNTY.
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5. BMP'S ARE TO BE PRIVATELY MAINTAINED AND THE FACILITIES NOT MODIFIED OR REMOVED WITHOUT A PERMIT FROM THE CITY.

EASEMENT NOTES

**SEE SHEET 1 FOR ALL EXISTING EASEMENTS PLOTTED AND LABELED ONSITE

GENERAL NOTES

**SEE SHEET 5 & 6 FOR SITE SECTIONS

CONSTRUCTION NOTES

1. PROPOSED AC PAVEMENT OVER BASE PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
2. PROPOSED 6-INCH HIGH CONCRETE CURB WITH 18-INCH WIDE GUTTER.
3. PROPOSED 6-INCH HIGH CONCRETE CURB.
4. PROPOSED 0-INCH HIGH CONCRETE CURB.
5. PROPOSED 3-FOOT WIDE, 4-INCH THICK CONCRETE CROSS GUTTER.
6. PROPOSED HARDSCAPE PER LANDSCAPING PLANS.
7. PROPOSED ACCESSIBLE CURB RAMP.
8. PROPOSED ACCESSIBLE RAMP AND HANDRAILS.
9. PROPOSED CONCRETE STAIRS AND HANDRAILS.
10. PROPOSED TRASH ENCLOSURE.
11. PROPOSED CONCRETE DITCH.
12. PROPOSED PERMANENT SHORING WALL PER OTHERS.
13. PROPOSED MASONRY RETAINING WALL PER SDRSD C-05.
14. PROPOSED DRAINAGE DITCH INLET.
15. PROPOSED 2-FOOT WIDE CURB OPENING.
16. PROPOSED BIORETENTION BASIN TYPE 1 PER DETAIL ON SHEET 8.
17. PROPOSED BIORETENTION BASIN TYPE 2 PER DETAIL ON SHEET 8.
18. PROPOSED CONCRETE CURB INLET.
19. PROPOSED CONCRETE RIBBON GUTTER.
20. PROPOSED RIP RAP DISSIPATER.
21. PROPOSED CONCRETE RETAINING CURB.
22. PROPOSED RETAINING WALL PER STRUCTURAL AND GEOTECHNICAL RECOMMENDATIONS.
23. PROPOSED SAFETY GUARDRAIL.
24. PROPOSED VEHICULAR CONCRETE PAVERS PER GEOTECHNICAL RECOMMENDATIONS.
25. PROPOSED AC BERM.
26. PROPOSED MASONRY RETAINING WALL PER SDRSD C-01.
27. PROPOSED MASONRY RETAINING WALL PER SDRSD C-03.
28. PROPOSED CONCRETE SEAT WALL.
29. PROPOSED BUS SHELTER STRUCTURE.
30. PROPOSED STREET LIGHT.
31. PROPOSED DOUBLE YELLOW STRIPING.
40. PROPOSED PRIVATE STORM DRAINAGE PIPE.
41. PROPOSED PRIVATE UNDERGROUND STORMTRAP DETENTION SYSTEM PER DETAILS ON SHEET 7.
42. PROPOSED PRIVATE STORM DRAIN CLEANOUT PER SDRSD D-09.
43. PROPOSED PRIVATE AREA DRAIN.
44. PROPOSED PUBLIC SIDEWALK UNDERDRAIN.
45. PROPOSED MANHOLE FRAME AND COVER FOR ACCESS INTO STORMTRAP DETENTION SYSTEM PER DETAILS ON SHEET 7.
46. PROPOSED MODULAR WETLANDS SYSTEM (CURB INLET TYPE).
47. PROPOSED PUBLIC STORM DRAINAGE PIPE.

PUBLIC TREE REPLACEMENT SUMMARY

NO.	EXISTING TREES TO BE REMOVED	NEW TREES TO REPLACE REMOVED TREES
1	12" DEODAR CEDAR TREE	TORREY PINE TREE
2	1" STRAWBERRY TREE	TORREY PINE TREE
3	6" TORREY PINE TREE	NEW ZEALAND CHRISMAS TREE
4	6" STRAWBERRY TREE	NEW ZEALAND CHRISTMAS TREE
5	5" STRAWBERRY TREE	FLAME TREE
6	6" STRAWBERRY TREE	FLAME TREE
7	4" TORREY PINE TREE	FLAME TREE

PRELIMINARY GRADING PLAN
FENWAY N. HWY 101
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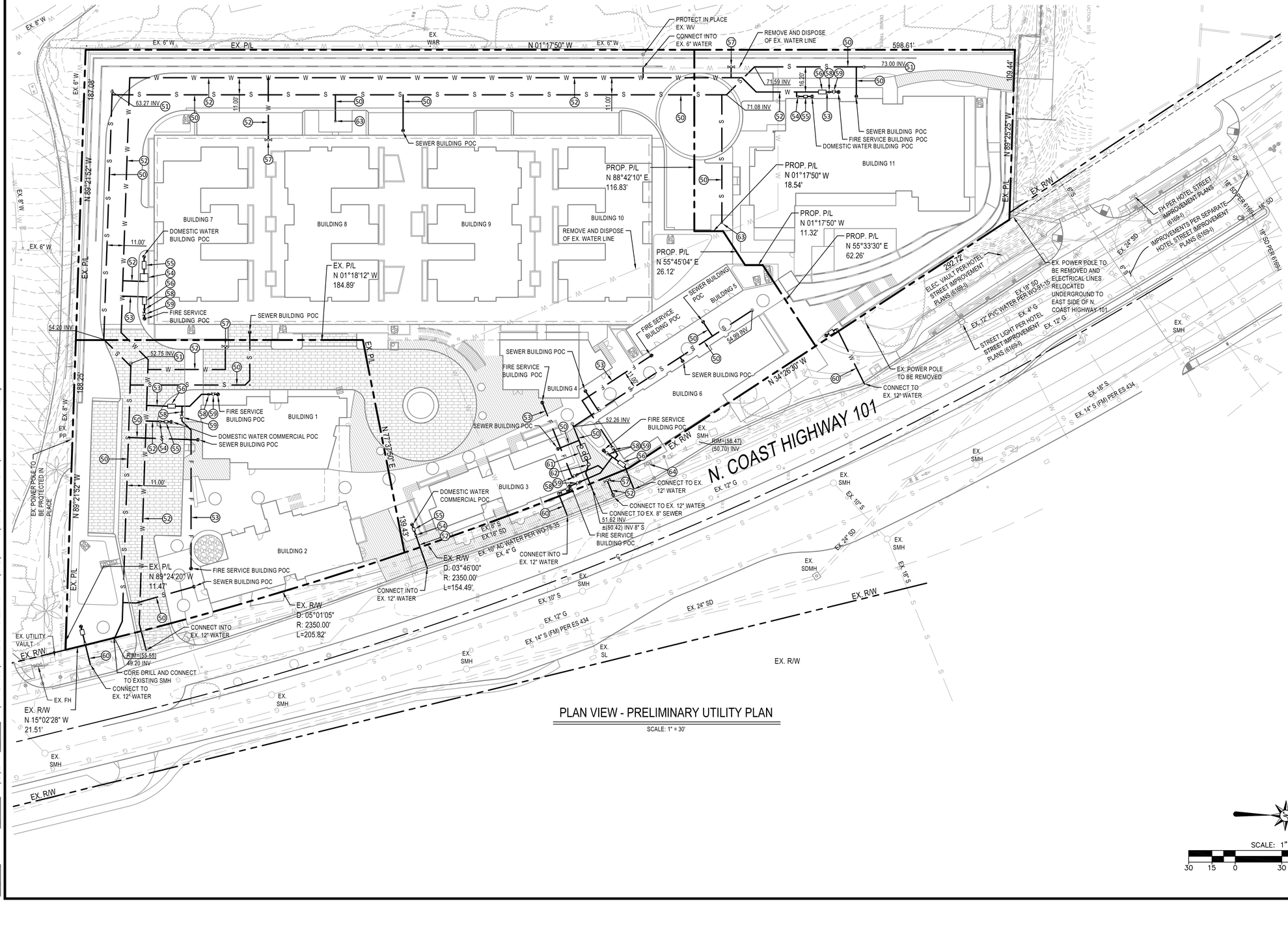
PRELIMINARY UTILITY PLAN

FENWAY N. HWY 101



PLAN VIEW - PRELIMINARY UTILITY PLAN

SCALE: 1" = 30'

LEGEND

- PROPERTY BOUNDARY/RIGHT-OF-WAY
- CENTERLINE OF ROAD
- SETBACK LINE
- EXISTING CONTOUR LINE
- PROPOSED CONTOUR LINE
- PROPOSED DIRECTION OF FLOW
- PROPOSED CURB & GUTTER
- PROPOSED MASONRY RETAINING WALL
- PROPOSED WATER MAIN
- PROPOSED FIRE SERVICE
- PROPOSED SEWER MAIN
- EXISTING WATER MAIN (SIZE PER PLAN)
- EXISTING SEWER MAIN (SIZE PER PLAN)
- EXISTING STORM DRAIN (SIZE PER PLAN)
- EXISTING GAS MAIN
- EXISTING TELECOM CONDUIT

CONSTRUCTION NOTES

(50) PROPOSED PRIVATE SEWER PIPE.
(51) PROPOSED PRIVATE SEWER CLEANOUT.
(52) PROPOSED PUBLIC WATER PIPE.
(53) PROPOSED PRIVATE FIRE SERVICE WATER PIPE.
(54) PROPOSED PUBLIC WATER METER.
(55) PROPOSED PRIVATE DOMESTIC WATER BACKFLOW.
(56) PROPOSED PUBLIC FIRE SERVICE REDUCED PRESSURE BACKFLOW PREVENTION DEVICE.
(57) PROPOSED PUBLIC FIRE HYDRANT.
(58) PROPOSED PRIVATE POST INDICATOR VALVE.
(59) PROPOSED PRIVATE FIRE DEPARTMENT CONNECTION.
(60) PROPOSED PUBLIC IRRIGATION METER, SERVICE LATERAL AND PRIVATE BACKFLOW.
(61) PROPOSED PRIVATE SEWER GREASE INTERCEPTOR.
(62) PROPOSED PRIVATE SEWER GREASE SAMPLE BOX.
(63) PROPOSED PRIVATE DRAINAGE INLET FOR TRASH ENCLOSURE.
(64) REMOVE EX. PUBLIC FIRE HYDRANT.

SITE NOTES

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EASEMENT NOTES

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SCALE: 1" = 30'

30 15 0 30 60 90

PRELIMINARY UTILITY PLAN
FENWAY N. HWY 101
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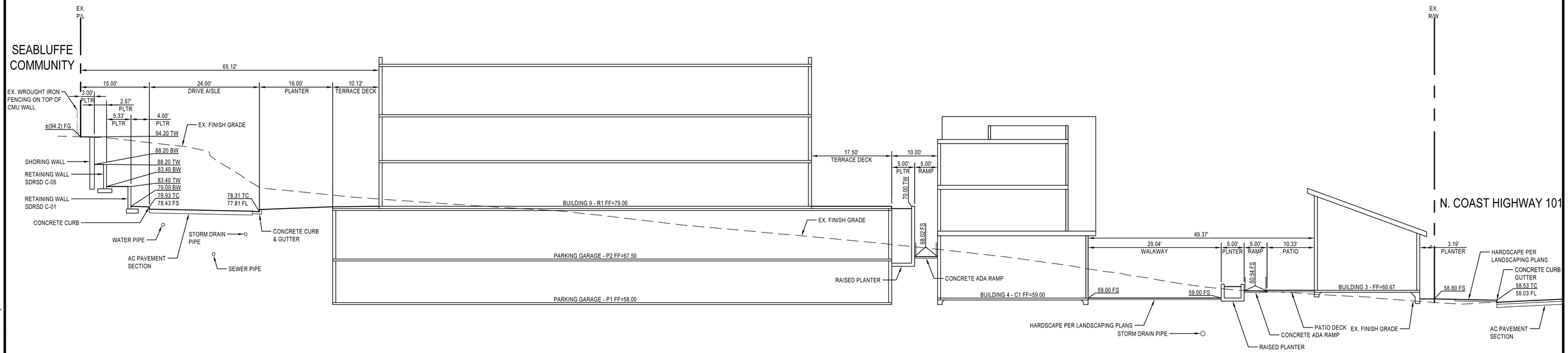
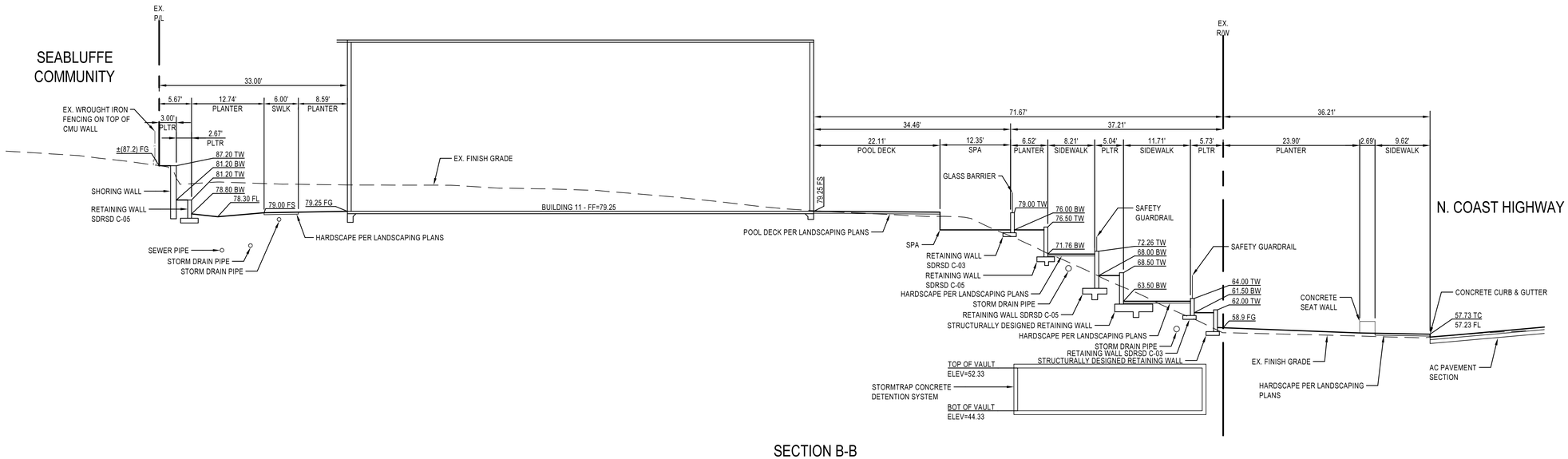
SITE SECTIONS

FENWAY N. HWY 101



SECTION A-A

SCALE: 1"=10'



SECTION B-B

SCALE: 1"=10'

NOTE

ACCORDING TO THE PROJECT'S GEOTECHNICAL REPORT PREPARED BY NOVA (DATED APRIL 27, 2020), NONE OF THE BORINGS COMPLETED ENCOUNTERED GROUNDWATER. BORINGS WERE COMPLETED IN DEPTHS RANGING FROM 21.5 FEET TO 56.5 FEET BELOW GROUND SURFACE WITH THE LOWEST BOTTOM OF BORING ELEVATION APPROXIMATELY AT 29.50. AS SUCH, THE GROUNDWATER ELEVATION CANNOT BE PLOTTED ON THE SITE SECTIONS.

SITE SECTIONS
FENWAY N. HWY 101
CITY OF ENCINITAS

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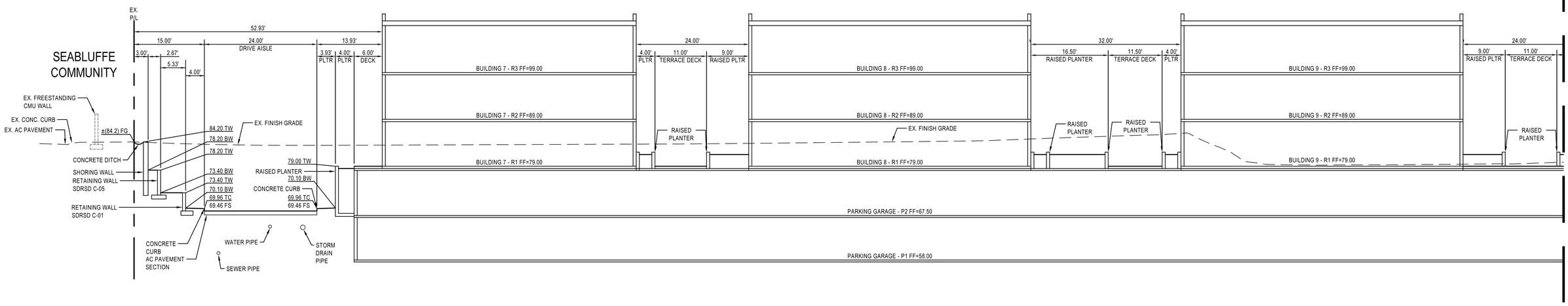
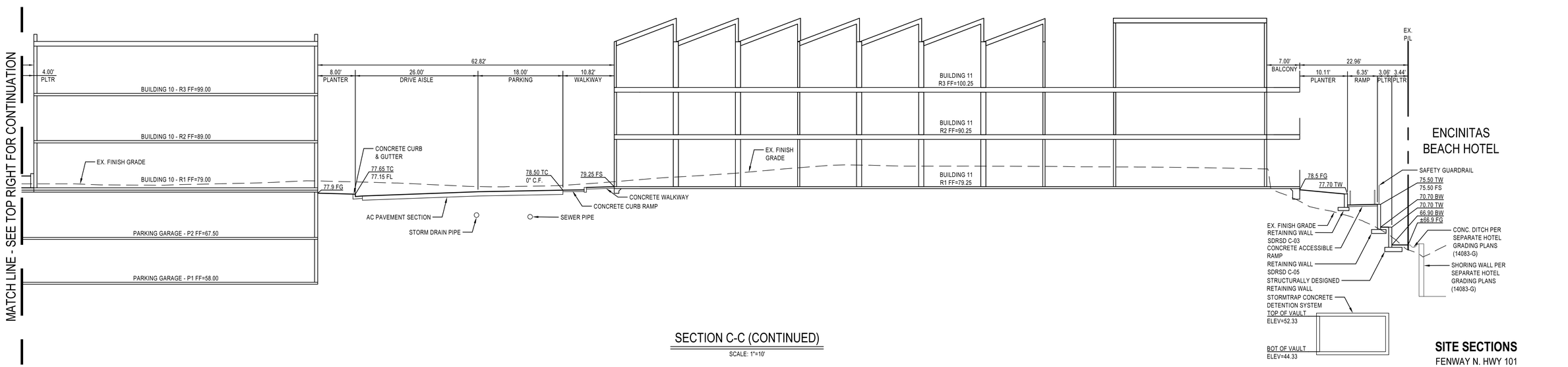
SITE SECTIONS

FENWAY N. HWY 101



SECTION C-C

SCALE: 1"=10'



SECTION C-C (CONTINUED)

SCALE: 1"=10'

NOTE

ACCORDING TO THE PROJECT'S GEOTECHNICAL REPORT PREPARED BY NOVA (DATED APRIL 27, 2020), NONE OF THE BORINGS COMPLETED ENCOUNTERED GROUNDWATER. BORINGS WERE COMPLETED IN DEPTHS RANGING FROM 21.5 FEET TO 56.5 FEET BELOW GROUND SURFACE WITH THE LOWEST BOTTOM OF BORING ELEVATION APPROXIMATELY AT 29.50. AS SUCH, THE GROUNDWATER ELEVATION CANNOT BE PLOTTED ON THE SITE SECTIONS.

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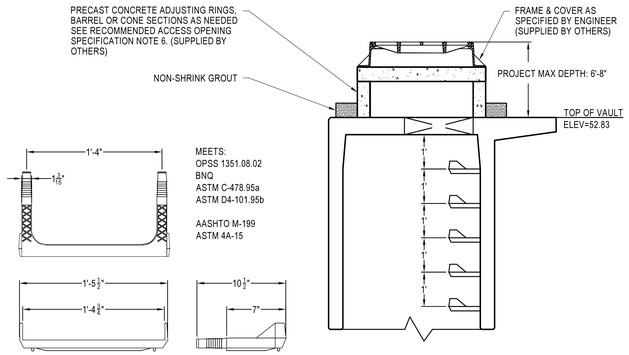
DETAILS

FENWAY N. HWY 101



STEP DETAIL

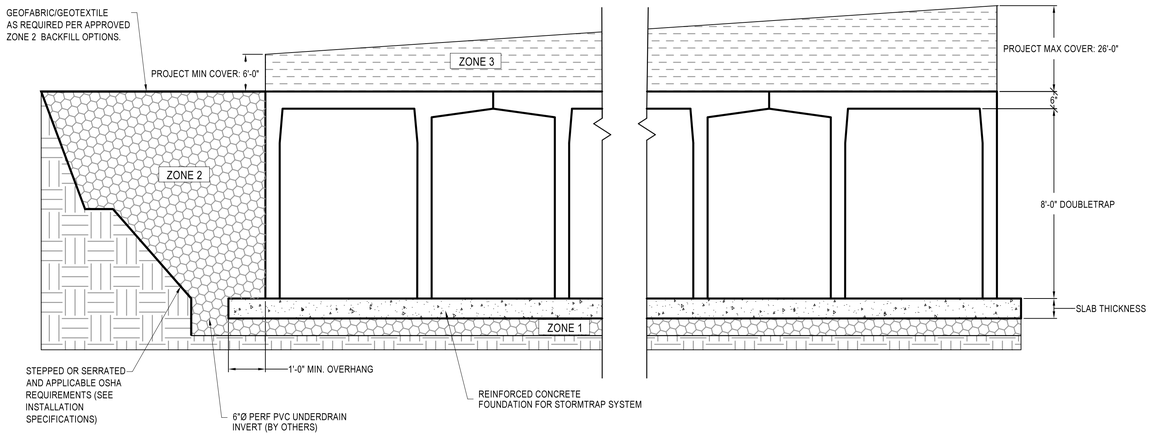
SCALE: NOT TO SCALE

RISER/ STAIR DETAIL

SCALE: NOT TO SCALE

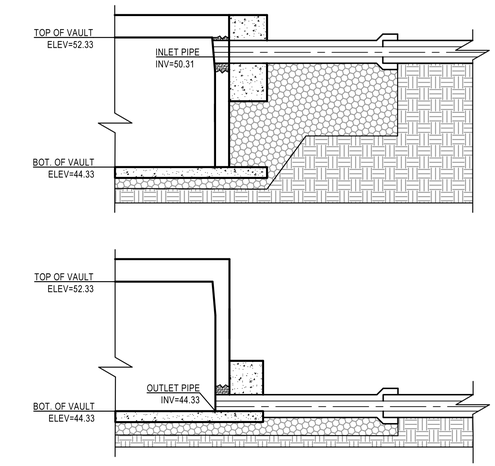
STORMTRAP INSTALLATION SPECIFICATIONS

1. STORMTRAP SHALL BE INSTALLED IN ACCORDANCE WITH ASTM C891, STANDARD FOR INSTALLATION OF UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURES, THE FOLLOWING ADDITIONS AND/OR EXCEPTIONS SHALL APPLY:
2. IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT PROPER/ADEQUATE EQUIPMENT IS USED TO SET/INSTALL THE MODULES.
3. STORMTRAP MODULES SHALL BE PLACED ON A LEVEL CONCRETE FOUNDATION (SEE SHEET 2.1) WITH A 1'-0" OVERHANG ON ALL SIDES THAT SHALL BE POURED IN PLACE BY INSTALLING CONTRACTOR. A QUALIFIED GEOTECHNICAL ENGINEER WILL BE EMPLOYED, BY OWNER, TO PROVIDE ASSISTANCE IN EVALUATING THE EXISTING SOIL CONDITIONS TO ENSURE THAT THE SOIL BEARING PRESSURE MEETS OR EXCEEDS THE STRUCTURAL DESIGN LOADING CRITERIA AS SPECIFIED ON SHEET 1.0.
4. THE STORMTRAP MODULES SHALL BE PLACED SUCH THAT THE MAXIMUM SPACE BETWEEN ADJACENT MODULES DOES NOT EXCEED $\frac{3}{4}$" (SEE DETAIL 2). IF THE SPACE EXCEEDS $\frac{3}{4}$", THE MODULES SHALL BE RESET WITH APPROPRIATE ADJUSTMENT MADE TO LINE AND GRADE TO BRING THE SPACE INTO SPECIFICATION.
5. THE PERIMETER HORIZONTAL JOINT BETWEEN THE STORMTRAP MODULES AND THE CONCRETE FOUNDATION SHALL BE SEALED TO THE FOUNDATION WITH PRE-FORMED MASTIC JOINT SEALER ACCORDING TO ASTM C891, 8.8 AND 8.12 (SEE DETAIL 1). THE MASTIC JOINT TAPE DOES NOT PROVIDE A WATERTIGHT SEAL.
6. ALL EXTERIOR JOINTS BETWEEN ADJACENT STORMTRAP MODULES SHALL BE SEALED WITH 8" WIDE PRE-FORMED, COLD-APPLIED, SELF-ADHERING ELASTOMERIC RESIN, BONDED TO A WOVEN , HIGHLY PUNCTURE RESISTANT POLYMER WRAP, CONFORMING TO ASTM C891 AND SHALL BE INTEGRATED WITH PRIMER SEALANT AS APPROVED BY STORMTRAP (SEE DETAILS 3 & 4). THE JOINT WRAP DOES NOT PROVIDE A WATERTIGHT SEAL. THE SOLE PURPOSE OF THE JOINT
7. WRAP IS TO PROVIDE A SILT AND SOIL TIGHT SYSTEM. THE ADHESIVE EXTERIOR JOINT WRAP SHALL BE INSTALLED ACCORDING TO THE FOLLOWING INSTALLATION INSTRUCTIONS:
   - 7.1. USE A BRUSH OR WET CLOTH TO THOROUGHLY CLEAN THE OUTSIDE SURFACE AT THE POINT WHERE JOINT WRAP IS TO BE APPLIED.
   - 7.2. A RELEASE PAPER PROTECTS THE ADHESIVE SIDE OF THE JOINT WRAP. PLACE THE ADHESIVE TAPE (ADHESIVE SIDE DOWN) AROUND THE STRUCTURE, REMOVING THE RELEASE PAPER AS YOU GO. PRESS THE JOINT WRAP FIRMLY AGAINST THE STORMTRAP MODULE SURFACE WHEN APPLYING.
8. IF THE CONTRACTOR NEEDS TO CANCEL ANY SHIPMENTS, THEY MUST DO SO 48 HOURS PRIOR TO THEIR SCHEDULED ARRIVAL AT THE JOB SITE. IF CANCELED AFTER THAT TIME, PLEASE CONTACT THE PROJECT MANAGER.
9. IF THE STORMTRAP MODULE(S) IS DAMAGED IN ANY WAY PRIOR, DURING, OR AFTER INSTALL, STORMTRAP MUST BE CONTACTED IMMEDIATELY TO ASSESS THE DAMAGE AND DETERMINE WHETHER OR NOT THE MODULE(S) WILL NEED TO BE REPLACED. IF ANY MODULE ARRIVES AT THE JOBSITE DAMAGED DO NOT UNLOAD IT; CONTACT STORMTRAP IMMEDIATELY. ANY DAMAGE NOT REPORTED BEFORE THE TRUCK IS UNLOADED WILL BE THE CONTRACTOR'S RESPONSIBILITY.
10. STORMTRAP MODULES CANNOT BE ALTERED IN ANY WAY AFTER MANUFACTURING WITHOUT WRITTEN CONSENT FROM STORMTRAP.



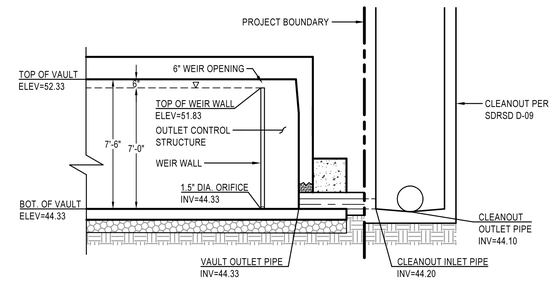
ZONE CHART		
ZONES	ZONE DESCRIPTIONS	REMARKS
ZONE 1	FOUNDATION AGGREGATE	#5 ($2^{"}$) STONE AGGREGATE (SEE NOTE 4 FOR DESCRIPTION)
ZONE 2	BACKFILL	UNIFIED SOILS CLASSIFICATION (GW, GP, SW, SP) OR SEE BELOW FOR APPROVED BACKFILL OPTIONS
ZONE 3	FINAL COVER OVERTOP	MATERIALS NOT TO EXCEED 120 PCF

APPROVED ZONE 2 BACKFILL OPTIONS	
OPTION	REMARKS
$\frac{3}{4}$" STONE AGGREGATE	THE STONE AGGREGATE SHALL CONSIST OF CLEAN AND FREE DRAINING ANGULAR MATERIAL. THE SIZE OF THIS MATERIAL SHALL HAVE 100% PASSING THE 1" SIEVE WITH 0% TO 5% PASSING THE #8 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL (ASTM SIZE #57) AS DETERMINED BY THE GEOTECHNICAL ENGINEER.
SAND	IMPORTED PURE SAND IS PERMITTED TO BE USED AS BACKFILL IF IT IS CLEAN AND FREE DRAINING. THE SAND USED FOR BACKFILLING SHALL HAVE LESS THAN 40% PASSING #40 SIEVE AND LESS THAN 5% PASSING #200 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE SAND BACKFILL.
CRUSHED CONCRETE AGGREGATE	CLEAN, FREE DRAINING CRUSHED CONCRETE AGGREGATE MATERIAL CAN BE USED AS BACKFILL FOR STORMTRAP'S MODULES. THE SIZE OF THIS MATERIAL SHALL HAVE 100% PASSING THE 1" SIEVE WITH 0% TO 5% PASSING THE #8 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL.
ROAD PACK	STONE AGGREGATE 100% PASSING THE 1-1/2" SIEVE WITH LESS THAN 12% PASSING THE #200 SIEVE (ASTM SIZE #467). GEOFABRIC AS PER GEOTECHNICAL ENGINEER RECOMMENDATION.



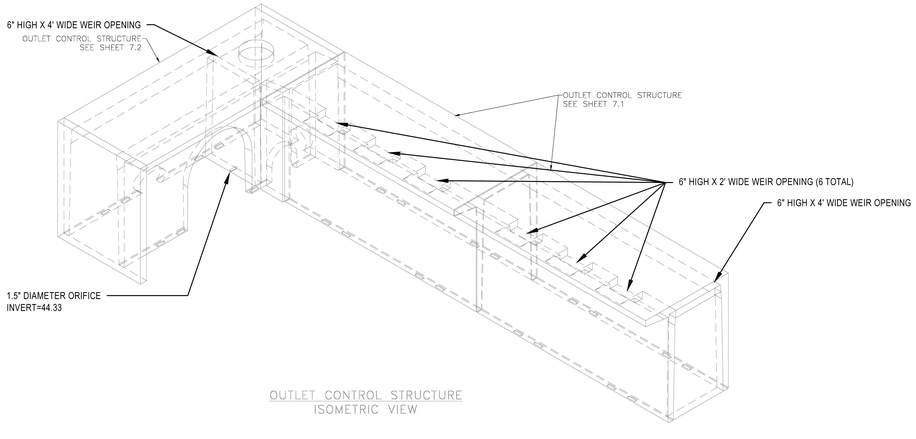
PIPE CONNECTION DETAILS

SCALE: NOT TO SCALE

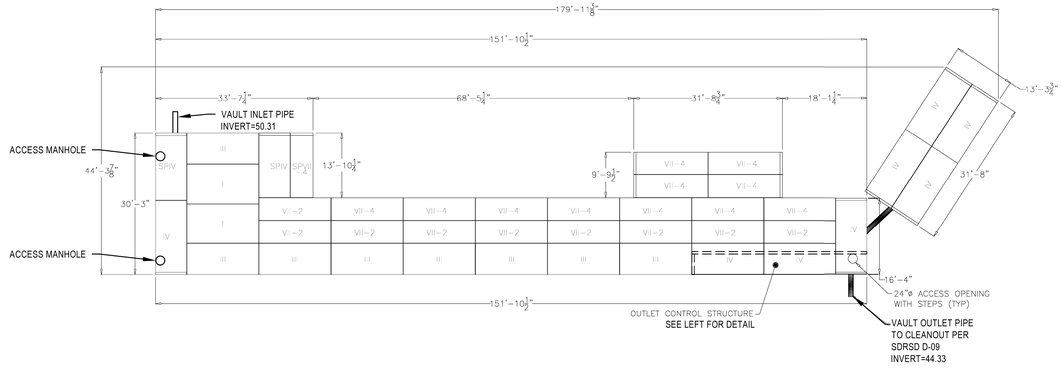


VAULT OUTLET DETAIL

SCALE: NOT TO SCALE



OUTLET CONTROL STRUCTURE ISOMETRIC VIEW



TYPICAL DETAILS - STORMTRAP DETENTION SYSTEM

SCALE: NOT TO SCALE

DETAILS
FENWAY N. HWY 101
CITY OF ENCINITAS

PASCO LARET SUITER & ASSOCIATES
San Diego | Solana Beach | Orange County
Phone 949.661.6695 | www.plsaengineering.com

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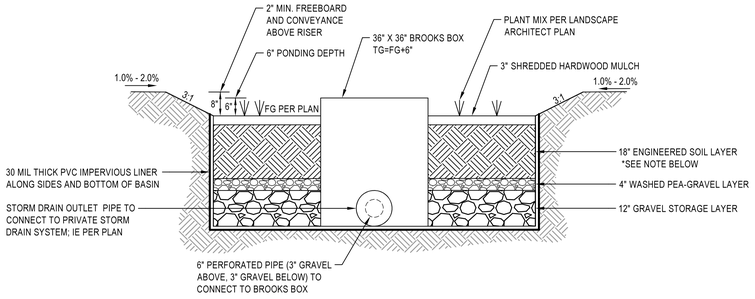
DETAILS

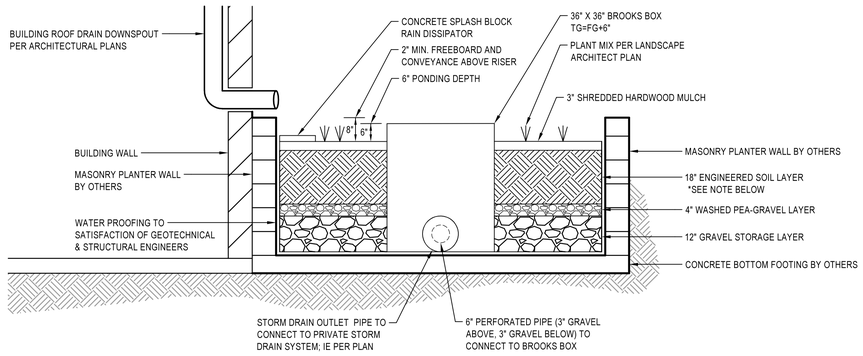
FENWAY N. HWY 101



*BIOFILTRATION "ENGINEERED SOIL" LAYER SHALL BE EVENLY MIXED COMPOSITION OF WASHED SAND, SANDY LOAM TOPSOIL, AND HUMIC COMPOST. THE MIX SHALL CONTAIN 65% SAND, 20% TOPSOIL, AND 15% COMPOST OR HARDWOOD MULCH IN ACCORDANCE WITH COUNTY OF SAN DIEGO LID BIOSWALE MEDIA BIO65 CUT SHEET

TYPICAL SECTION - BIOFILTRATION BASIN TYPE 1

SCALE: NOT TO SCALE



*BIOFILTRATION "ENGINEERED SOIL" LAYER SHALL BE EVENLY MIXED COMPOSITION OF WASHED SAND, SANDY LOAM TOPSOIL, AND HUMIC COMPOST. THE MIX SHALL CONTAIN 65% SAND, 20% TOPSOIL, AND 15% COMPOST OR HARDWOOD MULCH IN ACCORDANCE WITH COUNTY OF SAN DIEGO LID BIOSWALE MEDIA BIO65 CUT SHEET

TYPICAL SECTION - BIOFILTRATION BASIN TYPE 2

SCALE: NOT TO SCALE

DETAILS
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SLOPE ANALYSIS & LOT AREAS

FENWAY N. HWY 101

PLAN VIEW - SLOPE ANALYSIS & LOT AREAS

SCALE: 1" = 30'

SITE ADDRESS:

LEUCADIA 101
1950 NORTH COAST HWY 101
ENCINITAS, CA 92024
APN: 216-041-06, -20 & -21

SOURCE OF TOPOGRAPHY:

TOPOGRAPHY OBTAINED BY AERIAL SURVEY METHODS PERFORMED BY ACCULINE SURVEY, INC. DATED JULY 6, 2019

NATURAL SLOPE AREA REDUCTIONS:

TOTAL GROSS LOT AREA (R30 & N-CRM-1) = 3.790 AC

	SLOPES	0 - 25%	3.200 AC	(84.43% OF PROJECT SITE)
	SLOPES	25 - 40%	0.208 AC	(5.48% OF PROJECT SITE)
	SLOPES	40% +	0.382 AC	(10.09% OF PROJECT SITE)
		TOTAL SLOPES =	3.790 AC	

PER GEOTECHNICAL INVESTIGATION REPORT (DATED APRIL 27, 2020) BY NOVA SERVICES, INC., REVIEW OF HISTORICAL PHOTOS OF THE AREA AND ANALYSIS OF RECENT GRADING ACTIVITIES CONCLUDES THAT THE SLOPES STEEPER THAN 25% ON THE PROPERTY ARE THE DIRECT RESULT OF GRADING ACTIVITIES; THEREFORE ALL ONSITE SLOPES STEEPER THAN 25% ARE MANUFACTURED AND PARCEL NET ACREAGES WILL NOT BE REDUCED PURSUANT TO CITY MUNICIPAL CODE SECTION 30.16.10.B.2.

LOT AREA CALCULATIONS

PARCEL 1

GROSS LOT AREA (PARCEL 1)	= 30,096 SF
LESS PRIVATE ROAD EASEMENT*	= (0) SF
NET LOT AREA (PARCEL 1)	= 30,096 SF

PARCEL 2

GROSS LOT AREA (PARCEL 2)	= 100,357 SF
LESS PRIVATE ROAD EASEMENT*	= (0) SF
NET LOT AREA (PARCEL 2)	= 100,357 SF

PARCEL 3

GROSS LOT AREA (PARCEL 3)	= 34,654 SF
LESS PRIVATE ROAD EASEMENT*	= (0) SF
NET LOT AREA (PARCEL 3)	= 34,654 SF

*PRIVATE ROAD EASEMENT FOR EMERGENCY VEHICLE ACCESS PURPOSES DOES NOT SUBTRACT FROM GROSS LOT AREA

SCALE: 1" = 30'

30 15 0 30 60 90

SLOPE ANALYSIS & LOT AREAS
FENWAY N. HWY 101
CITY OF ENCINITAS

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HILLSIDE INLAND BLUFF OVERLAY ANALYSIS

FENWAY N. HWY 101

PLAN VIEW - HILLSIDE INLAND BLUFF OVERLAY ANALYSIS

SCALE: 1" = 30'

SITE ADDRESS:

LEUCADIA 101
1950 NORTH COAST HWY 101
ENCINITAS, CA 92024
APN: 216-041-06, -20 & -21

SOURCE OF TOPOGRAPHY:

TOPOGRAPHY OBTAINED BY AERIAL SURVEY METHODS PERFORMED BY ACCULINE SURVEY, INC. DATED JULY 6, 2019

HILLSIDE INLAND BLUFF OVERLAY:

PURSUANT TO THE CITY OF ENCINITAS HILLSIDE / INLAND BLUFF OVERLAY ZONE (H/IBO) GIS MAP (DATED FEBRUARY 2008), A PORTION OF PARCEL 1 IS LOCATED WITHIN THE CITY'S SPECIAL STUDY OVERLAY ZONE. THEREFORE PARCEL 1 HAS BEEN EVALUATED FOR HILLSIDE / INLAND BLUFF OVERLAY ZONE APPLICABILITY.

PER CITY MUNICIPAL CODE SECTION 30.34.030, IF MORE THAN 10% OF PARCEL SLOPE EXCEED 25%, PARCEL IS SUBJECT TO HILLSIDE / INLAND BLUFF OVERLAY REGULATIONS AND SLOPES GREATER THAN 25% GRADE SHALL BE PRESERVED IN THEIR NATURAL STATE.

TOTAL GROSS LOT AREA (PARCEL 1) = 0.691 AC

SLOPES	0 - 25%	0.475 AC	(68.79% OF PROJECT SITE)
SLOPES	25 - 40%	0.054 AC	(7.82% OF PROJECT SITE)
SLOPES	40% +	0.162 AC	(23.39% OF PROJECT SITE)
	TOTAL SLOPES =	0.691 AC	

PER GEOTECHNICAL INVESTIGATION REPORT (DATED APRIL 27, 2020) BY NOVA SERVICES, INC., REVIEW OF HISTORICAL PHOTOS OF THE AREA AND ANALYSIS OF RECENT GRADING ACTIVITIES CONCLUDES THAT THE SLOPES STEEPER THAN 25% ON PARCEL 1 ARE THE DIRECT RESULT OF GRADING ACTIVITIES; THEREFORE ALL ONSITE SLOPES ON PARCEL 1 STEEPER THAN 25% ARE MANUFACTURED AND THE HILLSIDE / INLAND BLUFF OVERLAY REGULATIONS DO NOT APPLY TO PARCEL 1.

SCALE: 1" = 30'

30 15 0 30 60 90

HILLSIDE INLAND BLUFF OVERLAY ANALYSIS
FENWAY N. HWY 101
CITY OF ENCINITAS

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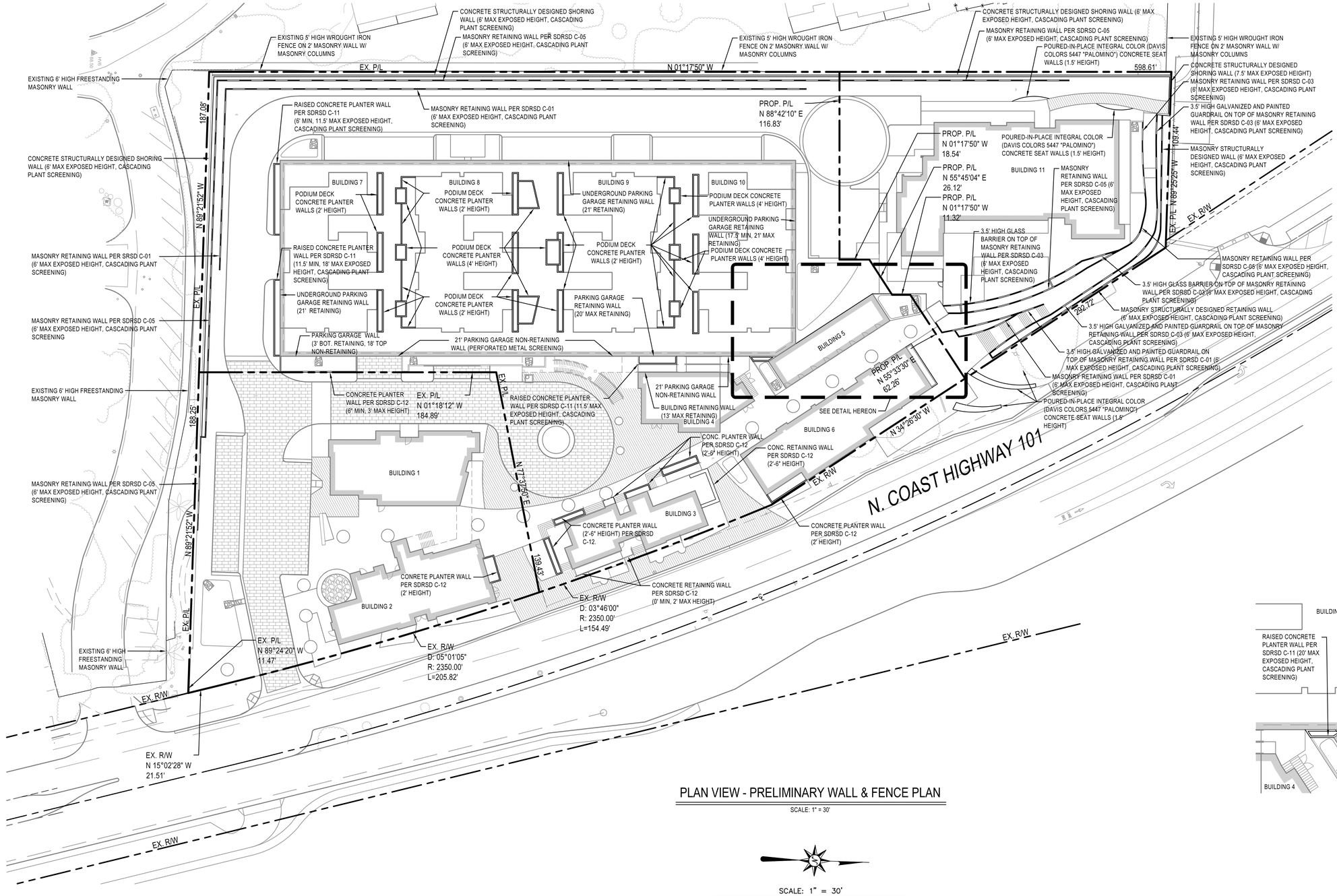
PRELIMINARY WALL & FENCE PLAN

FENWAY N. HWY 101



PLAN VIEW - PRELIMINARY WALL & FENCE PLAN

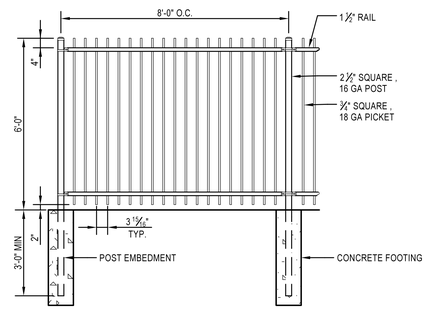
SCALE: 1" = 30'

SCALE: 1" = 30'

30 15 0 30 60 90

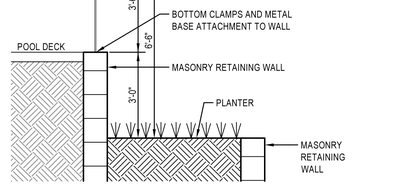
LEGEND

- PROPERTY BOUNDARY/RIGHT-OF-WAY
- CENTERLINE OF ROAD
- CURB & GUTTER
- PROPOSED MASONRY RETAINING WALL
- PROPOSED CONCRETE SHORING WALL
- PROPOSED RAISED PLANTER WALL
- PROPOSED BUILDING WALL



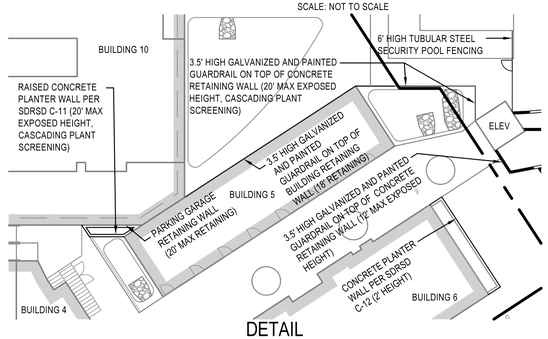
6' HIGH TUBULAR STEEL POOL SECURITY FENCE

SCALE: NOT TO SCALE



42" HIGH GLASS BARRIER

SCALE: NOT TO SCALE



DETAIL

SCALE: 1:20

PRELIMINARY WALL & FENCE PLAN

FENWAY N. HWY 101

CITY OF ENCINITAS

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